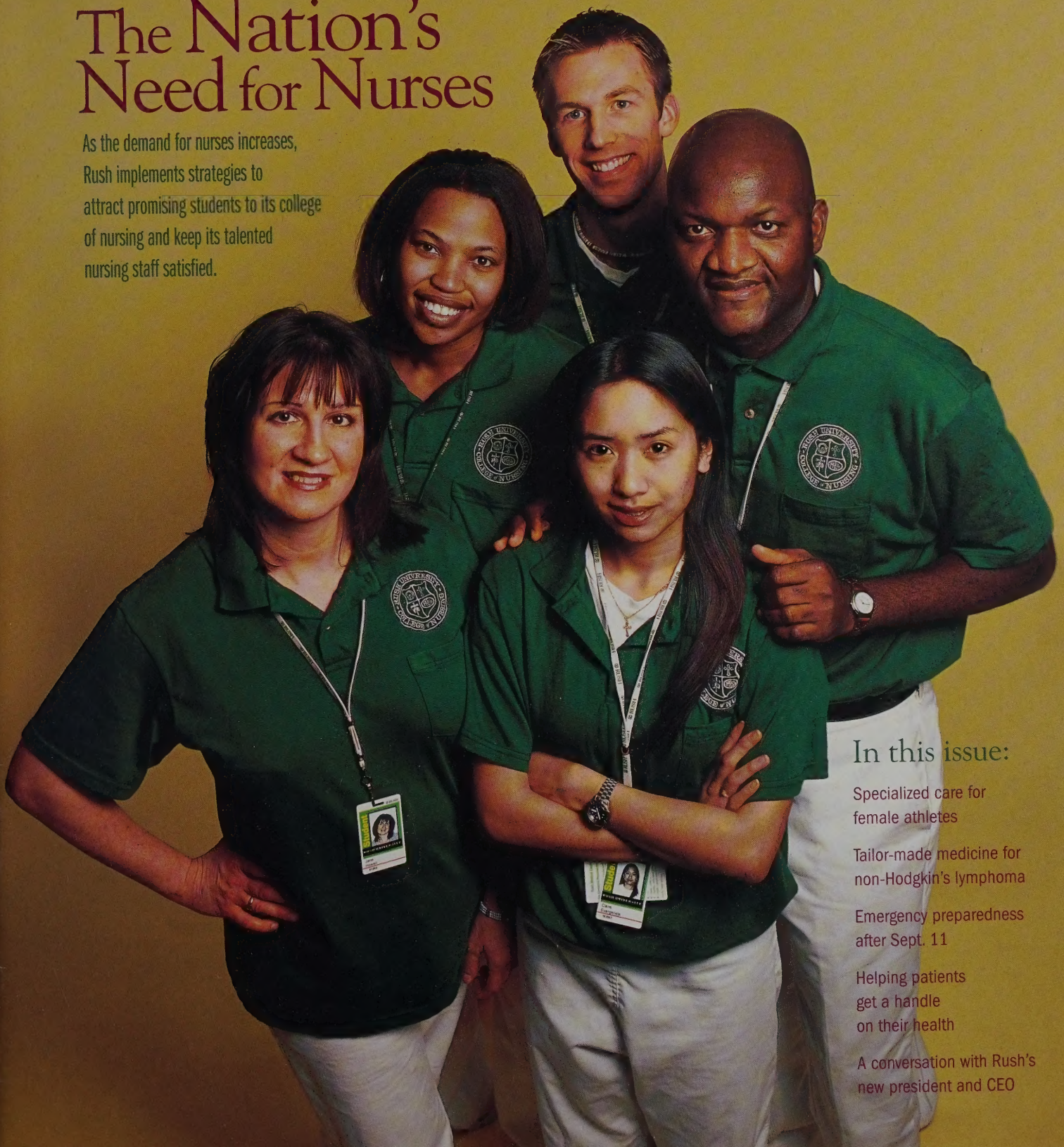
Rush Record

Spring/Summer 2002 A Publication of Rush-Presbyterian-St. Luke's Medical Center

The Nation's Need for Nurses

As the demand for nurses increases, Rush implements strategies to attract promising students to its college of nursing and keep its talented nursing staff satisfied.



In this issue:

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Editor:
Jill Waite

Managing Editor:
Judy Grossman

Writers:
Sean Carr
Patrick Kelly
Anne M. O'Reilly

Design and Art Direction:
Kimberly Allen, Jennifer Rayburn

Cover photo by Andrew Campbell

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Diane McKeever
Vice President

Sara Stern
Associate Vice President of Communication

Marie Mahoney
Director of Publications

Rush-Presbyterian-St. Luke's Medical Center
1700 West Van Buren, Suite 250
Chicago, IL 60612

For additional information on any of the articles in this issue, please call (312) 942-7817 or send an e-mail to jill_c_waite@rush.edu.

Visit our web site at www.rush.edu

RUSH
RUSH-PRESBYTERIAN-ST. LUKE'S MEDICAL CENTER

On the cover: Rush College of Nursing BSN students. Front (left to right), Jane Howell and Claire Evangelista; center (left to right), Nicole Evans and Presley Alohan; back, Josh Taber.

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Taking Charge

Helping patients get a handle on their health

by Judy Grossman

Joan and Alvin Morris

Alvin Morris doesn't have second helpings of food anymore — not since he made the decision to eat only what his wife, Joan, puts on his plate. It wasn't easy adapting to smaller meals, but Alvin knows that cutting calories will help keep his heart healthier in the long run.

The desire to stay healthy has also motivated 49-year-old CPA Gary Modes to reduce his stress levels — especially during the hectic tax season — by taking time-outs at work. Now, when he recognizes that he's getting too stressed, he goes for a walk or even takes a nap to restore his inner tranquility.

While portion control and stress reduction are important for everyone, they are especially vital for Morris and Modes. The 64-year-old Morris has heart disease, a chronic illness that is the leading cause of death in the United States. Modes is among the five million Americans who have heart failure, a chronic and debilitating form of heart disease in which the heart becomes enlarged and weakened, causing such symptoms as shortness of breath and fatigue.

A number of factors contribute to heart failure and heart disease. Some — gender, age and family history — cannot be controlled. But there are also many risk factors that can be changed, including obesity, inactivity, stress, smoking, high blood pressure and high cholesterol. Eliminating these risks for good can both slow the progression and significantly lower a person's chance of ever developing chronic heart problems.

While this may sound like a simple solution, it's easier said than done. Many patients make immediate and sweeping lifestyle changes in the wake of a heart attack or diagnosis of heart failure. But eventually, they lose their initial enthusiasm for change, and many patients revert to their former unhealthy behaviors.

Falling off the health wagon is a serious problem for people with chronic illnesses. According to the U.S. Department of Health and Human Services, only 25 to 40 percent of heart disease patients comply with their doctor's recommendations six months after diagnosis. And as many as 90 percent of heart failure patients don't stick with the lifestyle changes they've made.

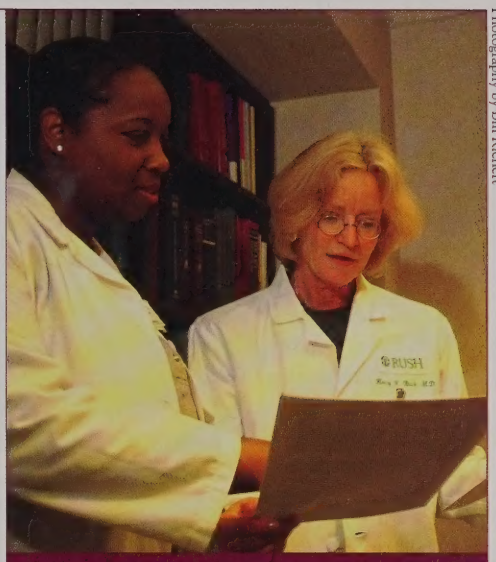
But while going back to eating super-sized combo meals, abusing the salt shaker or smoking a pack a day is a surefire recipe for a future health disaster, "it's extremely difficult to make and sustain major lifestyle changes over long periods of time, particularly if you have to do something fairly far off your normal path," says Rush Heart Institute clinical psychologist Albert Bellg, PhD.

Part of the problem is that while patients are told which changes they need to make, they are rarely given the tools necessary to maintain them. That's why several investigators at Rush are studying the effectiveness of behavioral self-management techniques in helping patients to manage chronic illness. These techniques are designed to complement the clinical care provided by doctors and nurses — and make it easier for patients to follow the doctor's orders.

"Even though the doctor says 'You must take your pills three times a day,' you can't assume the patient will follow through and do it," says Lynda Powell, PhD, associate chairperson of preventive medicine at Rush. "But if, in addition, you teach the patient how to rearrange their home and work environments to remember to take their pills — and to systematically track how well they are doing it — you put the patient in the driver's seat. You put them in a proactive role, rather than a passive one."

Creating success from failure

One of the reasons behavioral self-management techniques work is that they address the emotional aspects of chronic illness, which Powell says are as important as the physical symptoms. "If you don't incorporate the emotional side into rehabilitation, you're missing the biggest reason for nonadherence," she says. "Negative emotions can have an impact on health; if you're depressed or angry or have lost your will to live, you won't adhere."

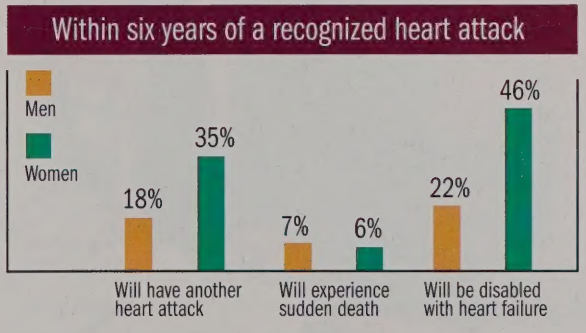


Photography by Bill Richert

HART trial lead investigator Lynda Powell, PhD (right), and co-investigator Cheryl Rucker-Whitaker, MD

Powell is the lead investigator of a large-scale clinical trial, called HART, the goal of which is to improve adherence in heart failure patients and reduce hospitalizations and death. The study, which involves Rush and six other Chicago-area hospitals, is being funded by a $5 million grant from the National Heart, Lung and Blood Institute, part of the National Institutes of Health. It is the first trial to examine behavioral self-management as an additional therapy for patients with congestive heart failure.

Because heart failure is a chronic progressive illness, it can cause not only prolonged periods of disability, but heavy emotional and economic burdens as well. Managing heart failure and preventing further progression of the disease requires patients to faithfully take



Courtesy of the American Heart Association

Many people experience problems within six years of a heart attack. Making lifestyle changes — and sticking with them — is one way for patients to decrease the risk of another heart attack, heart disease and sudden death.

their medications, limit salt and fluid intake and engage in moderate physical activity. And new studies are showing that heart failure patients have a higher incidence of depression than patients with other heart problems. That's why simply giving patients instructions is not enough. According to Powell, education is only the first step.

The HART trial goes two steps further. Patients are taught self-management strategies — including stress management, talking about their new lifestyle with family and friends, and rearranging their physical environment — to help them follow their doctor's advice.

And, possibly most important, they are asked to examine their motivation to use these skills. "Sometimes, when you're sick and your quality of life is low, you think 'I don't care whether I live or die,' " Powell says. "One of the points of this intervention is to give patients a chance to remember why they want to go on, what they want to live for. We don't take the will to live as a given for everyone."

Modes, who completed the HART pilot study in July 2001, says the emotional support he received in the group sessions has made a world of difference. "Having the right mental attitude will do more to help a person stay alive and healthy than all the medications combined," he says. "The study gave me the mental tools to cope with the physical and emotional ups and downs of heart failure. It's enabled me to view my illness not as a death sentence, but as something that I have to manage so I can live my life."

"It's been well established that poor adherence has a huge effect on hospital readmission rates for heart failure patients. The HART trial will tell us whether interventions directed at improving not only patient education, but also skills, will have a positive impact on how well they manage their disease." — James Calvin, MD, director, Rush Heart Institute and co-principal investigator, HART trial.

The trial is comparing the effectiveness of two different ways to provide patients with the information, skills and support they need to self-manage their illness. Half of the 900 participants attend 18 two-hour group meetings over a year, and half receive educational materials, via mail, 18 times over a year, with follow-up phone calls from a nurse.

"Managing heart disease is all about getting out of the model of the active doctor and passive patient," Powell says. "That works for acute illness — when, for example, the patient undergoes surgery. But when you're dealing with a chronic illness, the patient must get involved and form a partnership with the physician."

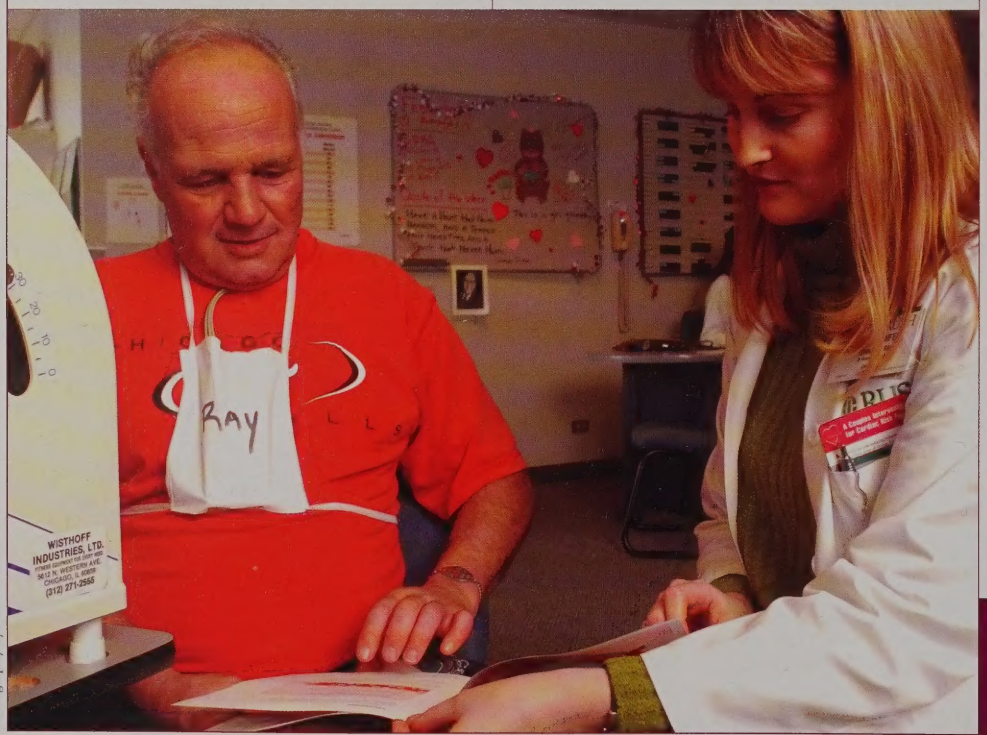
Changing for life

Alvin Morris has relied on a different kind of partnership — his 40-year marriage to Joan — to keep his heart disease under control.

The Morrises enrolled in the Partners for Life study at Rush in February 2001, while Alvin was in cardiac rehabilitation after his second heart attack. Alvin couldn't do anything about his age, gender or sobering family history — all of the aunts and uncles on his father's side and a couple of his brothers have died of heart attacks — but he realized that changing his behaviors could help him prevent a third, potentially fatal heart attack.

Partners for Life is led by Bellg and the study's medical director Philip Liebson, MD, a cardiologist at Rush, in collaboration with other researchers at Rush and the Illinois Institute of Technology. The study is based on the premise that teaching spouses or live-in partners to work together to implement changes makes sticking with those changes easier.

"You care about each other and want to help each other, but sometimes you don't know how to do that, so you end up nagging or policing," Bellg says. "But those strategies don't work because they don't promote self-regulation. When people buy into something long-term, it's because they find a way to do it that is acceptable to them and makes sense to them, not because they are made to feel guilty."



Partners for Life research coordinator Jennifer Tennant, RN, talks to 61-year-old study participant Ray Cupples about his diet.

Photography by Bill Richert

So, for instance, saying "You're a fat slob, and if you keep eating like that you always will be" to your partner every time you see him or her eating a potato chip is probably not going to make him or her put the bag down. In fact, that kind of nagging can cause resentment or lead the partner to sneak food or eat out of defiance. A better strategy might be for the couple to shop together for healthy foods that the patient can snack on without feeling resentful or deprived.

Devising effective coping strategies is one of the goals of the study. Patients are randomly distributed into two groups. In one group, patients complete a six-month behavioral change program — 18 one-hour sessions — with their significant others. In the other group, patients go through the behavioral change program on their own. After finishing the sessions, patients are followed for a year to see whether they stick to their medication schedules, diets and exercise plans.

Both groups are given information about leading a healthy lifestyle, but in the couples' sessions, partners review the information together. They are also taught strategies for communicating more effectively with each other about lifestyle changes, for coping with the emotional issues surrounding the illness, and for being more tolerant and supportive of each other. The needs of both partners — not just the patient — are addressed.

Alvin's lifestyle didn't need a major overhaul, just a few tweaks. He didn't smoke, ate a low-sodium diet and, since retiring from the Ford Motor Company in 1994, exercised regularly. His main problem was overeating — a behavior he needed to change to lower his blood pressure, cholesterol and weight.

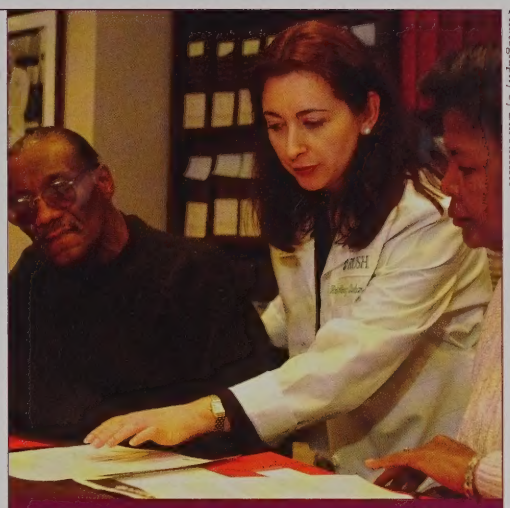
During their group sessions, Alvin and Joan learned all about proper nutrition and portion sizes, and together they devised a strategy to help him cut calories. Now, in addition to cooking heart-healthy foods, Joan also prepares Alvin's plate. "He decided he would eat only what I put on the plate," Joan says. "It was hard at first, because he was used to eating much more, but he got used to it." In addition, the Morrises agreed to stop eating red meat three times a week; steak is now a rare treat.

With Joan's support, Alvin has stuck with the changes — and it's made a huge difference. He feels healthier and has more energy to exercise and play with his grandchildren. And he hasn't had any heart problems for 14 months — and counting.

A promising union

Behavior management techniques are not meant to replace the care provided by physicians; both Powell and Bellg feel strongly that they should be used in conjunction with medications, diet and exercise to help patients manage chronic illness. Their hope is that behavioral psychologists will ultimately work side by side with physicians, nurses and other medical professionals to offer patients the best of both worlds.

"The focus of health care is shifting as the population ages, making more important the issues of management of chronic disease and enhancing quality of life," Bellg says. "It's no longer just about the physical treatment of physical problems; it's about treating the whole person." ■



Photography by Bill Richert

During the HART trial's group sessions, Rocio Muñoz-Dunbar, PhD, provides the information, encouragement and emotional support that heart failure patients, such as Erwin Acox (left) and Bertha Suggs, need to self-manage their illnesses.

The gift of sleep

Diet, medications and exercise aren't the only lifestyle issues that affect the health of people with coronary artery disease and other chronic illnesses. Sleep also plays a key role. Patients with chronic illnesses who also suffer from chronic insomnia can have a harder time dealing with their illnesses.

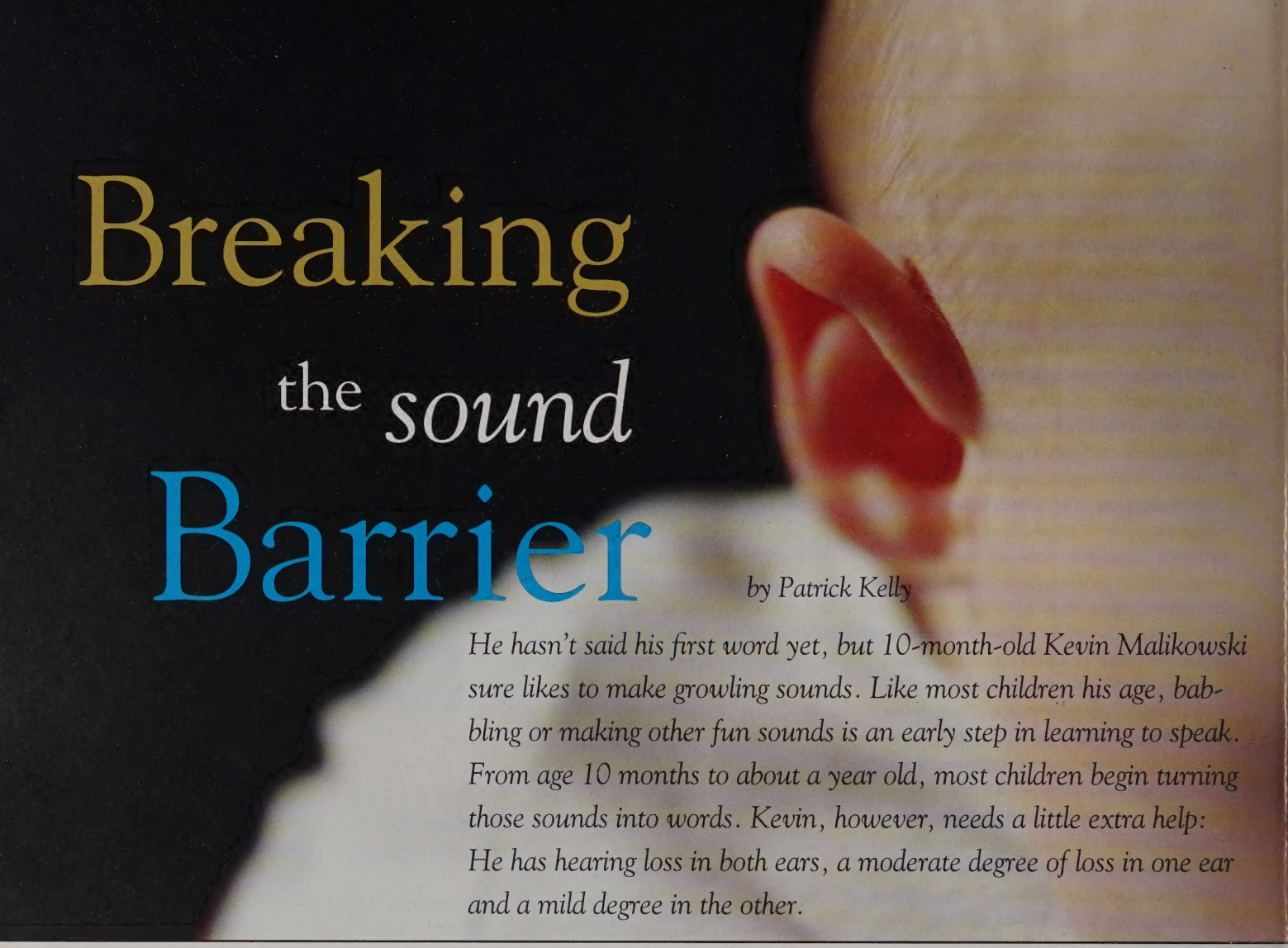
Sleep is important for everyone because that's when the body does its "housekeeping," replenishing its stores of physical and mental energy. Unfortunately, insomnia is common among people with chronic illnesses. And while it won't accelerate their disease or shorten their life span, patients who don't sleep well have lower energy levels, get out less and are more prone to depression and social withdrawal; therefore, they are less likely to go to their doctors for medical problems.

But when these patients are taught sleep management techniques, they almost immediately start sleeping – and feeling – better. "The effects they get from these small interventions are really profound," says clinical psychologist Bruce Rybarczyk, PhD. "And studies have shown that they sustain the benefits over a long period of time." Rybarczyk is applying these behavioral interventions to older adults with chronic disease in the Older Adults Sleep Improvement Study (OASIS).

The OASIS interventions are designed to help patients break bad sleep habits – such as napping and varying bedtimes – and restore their internal sleep mechanisms. For instance, while in the bedroom they are forbidden to watch television, talk on the phone or engage in any other activities that detract from sleep. They are also instructed not to "toss and turn" for more than 15 minutes before getting up and going into a different room – another way to take the anxiety out of the bedroom.

One of the most effective interventions, called sleep restriction, is used to reset a patient's internal clock. Based on a sleep diary kept by the patient, researchers calculate the average amount of sleep the patient is getting. The patient is permitted to sleep for only that amount of time – even if it means not going to sleep until 2 a.m.– every night for several weeks. The duration is then increased every week by half-hour intervals until the patient is getting 7 or 8 solid hours a night.

"What this does is totally change the game," Rybarczyk says. "Instead of worrying about not being able to sleep, they become preoccupied with having to stay awake. They start looking forward to bedtime rather than dreading it."



Breaking the sound Barrier

by Patrick Kelly

He hasn't said his first word yet, but 10-month-old Kevin Malikowski sure likes to make growling sounds. Like most children his age, babbling or making other fun sounds is an early step in learning to speak. From age 10 months to about a year old, most children begin turning those sounds into words. Kevin, however, needs a little extra help: He has hearing loss in both ears, a moderate degree of loss in one ear and a mild degree in the other.

Thanks to some hearing aids, weekly visits from a speech pathologist and lots of support from his family, Kevin is getting the extra help he needs to learn to talk — but many children with hearing disorders aren't as lucky.

Each year nearly 12,000 babies are born in the United States with mild, severe or profound hearing disorders, making it one of the most common major abnormalities in newborns. Yet, these hearing disorders can go undetected for months, even years, crippling a child's ability to communicate and relate to the world.

"Often, children aren't diagnosed with hearing disorders until pre-school or kindergarten," says Dianne Meyer, PhD, director of the Section of Communicative Disorders. "By then they may be far behind other children in their ability to develop language."

A new law passed by the Illinois legislature hopes to change that. It requires every newborn child in Illinois to undergo a hearing screening. And catching a hearing problem that early can make all the difference.

"The first three years are a critical stage for language development," explains Meyer, who actively advocated the law and now co-chairs the state advisory committee that was created by the mandate. "Even before saying their first word, children are learning about language during those early months, mostly by listening to sounds around them. They eventually learn to talk by imitating these sounds."

During infancy, Meyer says, children with normal hearing are able to sort through the multitude of sounds that surround them and select the ones that they will use to form words. "The normal hearing child experiments with the sounds that are used in his or her language and culture, and later learns to use those sounds in words."

A child with a hearing disorder, however, may not be able to hear those sounds or to distinguish between the sounds that are important and the ones that aren't. In fact, they may not hear their own babbling sounds at all. This puts them at a huge disadvantage — they miss out on the fun and learning that comes with playing with sounds.

These children need assistance in learning to communicate — in the form of hearing aids, sign language or other types of intervention.

The earlier a child gets this help, the better. And with early detection and intervention, a hearing-impaired child may develop communication skills comparable to those of a hearing child. "That's why this law is so important. It helps ensure that every hearing-impaired child gets the help he or she needs."

The initial screening is simple and easy to administer, says Meyer. Usually, the screening is given in the nursery while the infant sleeps. If the baby doesn't pass the screening, the law requires that follow-up testing be completed within three months. The Illinois Department of Public Health tracks these babies to ensure that this testing occurs.

If these diagnostic tests identify a hearing disorder, then intervention begins. The infant

is seen by a physician for any medical or surgical intervention and the child is referred to the local Child and Family Connections office, a state-funded intervention service, where children may be seen by specialists as needed. The audiologist continues to manage the child, ensuring he or she gets the hearing aids and family counseling needed.

Though the law doesn't take effect until the end of this year, many hospitals, including Rush, are already in compliance. Rush, in fact, has been performing hearing screenings on infants in its neonatal intensive care unit for almost 30 years — longer than any other hospital in Chicago.

Little Kevin was lucky. He was born at a hospital that already complies with the law, and his hearing disorder was detected right away. He was then referred to speech, language and hearing specialists at Rush.

"I'm really grateful that they did the screening," Kevin's mother says. "If they hadn't, I might not have known there was a problem for a long time."

Now, with the help of his audiologist, speech pathologist and his family, Kevin is acquiring the skills he will use to convey his ideas, share his stories and describe his thoughts. Their focus now: turn Kevin's growling sounds into the "guh" sound. So someday soon Kevin will not only know that his mom is great, he'll be able to say it. ■

Photography by Andrew Campbell

Dianne Meyer, PhD, director of the Section of Communicative Disorders, was an advocate for Illinois' mandatory newborn hearing screening law, which takes effect at the end of this year.

"I'm really grateful that they did the screening," Kevin's mother says. "If they hadn't, I might not have known there was a problem for a long time."

Rush audiologist Kimberly Franzyk, MA (center), and Donny Dunow, an audiology graduate student, test a baby to determine the extent of her hearing loss.

Photography by Kevin Horan

New doctoral program in audiology at Rush

With the many advances in the science of audiology, professional audiologists need more training than ever before. And Rush University is responding to this need with a new doctoral degree in audiology, or AuD – the first of its kind in the state.

The four-year postbachelor's program is designed to train audiologists on new technology and research. It will eventually replace Rush University's master's degree program in audiology, ranked among the best by *U.S. News & World Report*.

"The audiology profession is transitioning to the doctorate as the entry-level degree," says Dianne Meyer, PhD, chair of the Department of Communication Disorders and Sciences at Rush University. "It is no longer possible to include in a two-year master's program all the knowledge and skills an audiologist needs."

The new mandate for newborn hearing screening underscores the need for more advanced training for audiologists, Meyer says. Evaluating infants, for example, takes a greater understanding of the ear's anatomy and physiology, neurology and electrophysiology.

"The Rush AuD program will meet a growing market demand for highly trained health care professionals," she says.

Rush doctor of audiology students will be part of a training program that treats patients from infancy through older adulthood, offering services ranging from routine hearing tests to cochlear implants.

Ten students will make up the program's first class, which begins this fall.

Tailor-made *medicine*

by Jill Waite

In terms of their value in society and their levels of complexity, the worlds of fashion and medicine couldn't be farther apart. But a relatively new strategy in cancer treatment borrows heavily from what tailors have known for centuries — individual differences often require adjustments.

With a growing understanding of the complex structure of cells, how they work, how disease develops and how the immune system functions, researchers and doctors are now seeking alternatives to a one-size-fits-all approach to cancer. They are investigating tailor-made tactics that offer gentler treatment options and hope for prolonged survival. Nowhere is this more evident and more promising than in the fight against non-Hodgkin's lymphoma, a form of cancer of the lymph nodes.

Since the 1960s, survival rates for patients with non-Hodgkin's lymphoma — the fifth most common cancer in the United States — have risen significantly, with five-year survival rates increasing from 31 percent in 1960 to 52 percent in 2001, according to the Leukemia and Lymphoma Society. "People are living longer with this disease, and they are living better lives because of less toxic treatments," says Stephanie Gregory, MD, director of the Section of Hematology at Rush. Much of the progress can be attributed to earlier diagnosis, improved chemotherapy regimens and the introduction of drugs that help combat the common side effects of chemotherapy.

Ongoing challenges

Although these advances have been encouraging, the disease can be difficult to treat because it often returns after chemotherapy. Gregory, though, believes that the best news for patients with non-Hodgkin's lymphoma is yet to come.

More individualized treatments are on the horizon, several of which are currently being studied at Rush. These targeted therapies could reduce the need for chemotherapy, allowing patients to maintain their normal routines and keep their disease in remission for longer periods.

Unlike Hodgkin's lymphoma, a less common and less deadly disease, non-Hodgkin's lymphoma isn't characterized by one specific kind of cancer cell. There are many different types of non-Hodgkin's lymphoma, a disease characterized by the overproduction of cells in the lymphatic system, the system that protects the body from disease and infection.

Non-Hodgkin's lymphomas are grouped by the type of cell in the lymphatic system that "misbehaves" (T cells or B cells) and squeezes out healthy cells. They also are classified by how quickly the cells multiply ("aggressive" lymphomas have fast-growing malignant cells; "indolent" lymphomas have cells that grow more slowly). The most common early sign of non-Hodgkin's lymphoma is the swelling of lymph nodes — found in the neck, under the arm, and in the groin or abdomen — which is caused by the overgrowth of unhealthy cells. Standard treatment for non-Hodgkin's depends largely on the type of disease and its stage. Typically, though, doctors use chemotherapy, either alone or in combination with radiation therapy. In severe cases that do not respond to chemotherapy, bone marrow or stem cell transplantation may be an option.

The power of immunotherapy

But in the past 10 years, doctors and researchers have developed a new line of attack: immunotherapy. A variety of drugs — many of which are under development or are being tested in clinical trials — work with a patient's own natural immune system to fight off cancer. Whereas chemotherapy kills some healthy cells along with the cancer cells, immunotherapy drugs are more targeted — they aim for the malignant cells. This translates into fewer side effects, such as nausea, hair loss, anemia and fatigue.

One form of immunotherapy currently being investigated at Rush is a vaccine that uses a patient's very own cancer cells to fight non-Hodgkin's lymphoma. This disease can be difficult to treat because it often returns after chemotherapy and tends to become resistant to repeated chemotherapy regimens. The vaccine could help prolong remission periods (times when there is minimal or no disease) and reduce the need for repeated rounds of chemotherapy.

In the current study, Gregory and her colleagues are evaluating the effectiveness of the vaccine in patients with indolent non-Hodgkin's lymphoma. They remove cancer cells via a biopsy and then send the cells to a pharmaceutical lab that develops a custom-made vaccine by extracting proteins from the patient's cancer cells. In the meantime, patients receive chemotherapy every three weeks for 24 weeks, destroying as many cancer cells as possible. Since this particular type of lymphoma grows slowly, patients rest following chemotherapy for as long as six months without risk of recurrence. This allows the patients' immune systems —

Targeted therapy could reduce the need for chemotherapy, allowing patients to maintain their normal routines and keep their disease in remission for longer periods

Photography by Steve Gadomski

Stephanie Gregory, MD, director of the Section of Hematology, has practiced medicine for more than 35 years.

which are debilitated by chemotherapy — to return to normal. Then, once a month for several months, patients receive a vaccination.

Unlike the polio vaccine or any number of vaccines, this drug is not preventive. It does, however, use elements of the patient's cancer cells to communicate with the immune system. Like a police officer routing traffic, the vaccine steers the body's immune system directly toward the cancer cells — cells the vaccine can easily identify because they share similar characteristics. By guiding the immune system to malignant cells, the hope is that the immune system can more efficiently combat remnant cancer cells and decrease the likelihood of cancer returning.

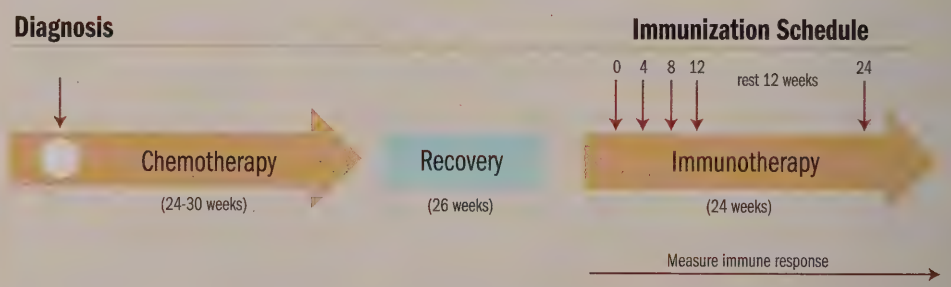
Once the injections are given, the immune response is measured to evaluate the vaccine's effectiveness. "Early results show that the vaccine functions as a kind of second line of defense, prolonging remission by training the immune system to target new cancer cells while sparing healthy cells," Gregory says.

Another form of immunotherapy — radioimmunotherapy — is also under investigation at Rush in patients with non-Hodgkin's lymphoma. In this treatment approach, radioactive material is attached to monoclonal antibodies — laboratory-produced proteins that hunt for specific kinds of cancer cells and bind to them. Unlike the body's natural antibodies, these monoclonal antibodies are programmed to target a patient's cancer cells and avoid healthy ones. Gamma rays emitted by these antibodies then "zap" the cancer cells and kill them. The radioimmuotherapy drug currently being studied by Rush — Bexxar — was designed specifically to attack a kind of

Photography by Steve Gadomski

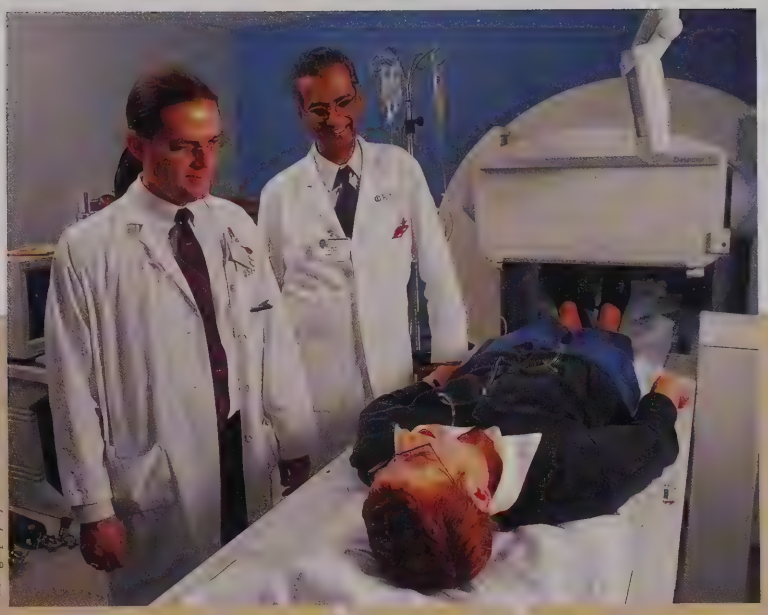
Stephanie Gregory, MD (left), and Carlene Porter, RN (right), work together to ensure that their patients are aware of the treatment options available. For some patients, that may include innovative new drugs such as Bexxar, which are currently available only in clinical trials.

Example of a vaccine treatment schedule



This illustrates the series of events and periods of time involved with using the vaccine in combination with chemotherapy. In this particular case, this is a schedule for a clinical trial using the vaccine in patients with low-grade follicular non-Hodgkin's lymphoma.

Illustration by Kim Allen



Photography by Steve Gadomski

Because the number of cancer cells differs from patient to patient, a significant challenge with radioimmunotherapy involves calculating the correct dose of antibody and radioactive material. That's why patients given Bexxar undergo periodic Gamma scans, which are overseen by specialists like Rush's Glenn Sullivan, director of radiation safety (left), and Amjad Ali, MD (right), director of nuclear medicine.

Like a police officer routing traffic, the vaccine steers the body's immune system directly toward the cancer cells.

cell found in patients with non-Hodgkin's lymphoma.

Because the number of cancer cells differs from patient to patient, a significant challenge with radioimmunotherapy involves calculating the correct dose of antibody and radioactive material. That's why patients given Bexxar undergo periodic Gamma scans. "These imaging scans indicate how much radioactive material is being absorbed or taken up by the cancer cells and allow doctors to individualize doses of the drug," says Theresa O'Brien, RN, clinical research coordinator for the Bexxar and vaccine trials.

So far, the results of Bexxar studies have been very promising, says Gregory. In one study, Bexxar was used to treat indolent non-Hodgkin's lymphomas in two age groups: those older than 60 years of age and those younger than 60. Seventy-six percent of patients in the "young" group and 60 percent of patients in the older group responded to treatment, with complete responses in 37 percent of the younger patients and 20 percent in the older patients. Considering that Bexxar was given without chemotherapy in this study, this treatment appears to be very effective, says Gregory, especially for older adults who often have difficulties tolerating chemotherapy. "For older patients, chemotherapy can cause more complications than the disease itself, so these findings could have significant implications," she says.

Other Bexxar studies at Rush include one that looks at how well the drug works when administered a second or third time to treat recurring disease and another that is evaluating Bexxar's effectiveness in combination with chemotherapy in treating aggressive non-Hodgkin's lymphomas. Gregory is also studying the recently FDA-approved radioimmunotherrapy drug Zevalin in combination with chemotherapy for selected lymphoma patients.

By personalizing treatment — using a patient's immune system or even the cancer itself — Gregory and Parameswaran Venugopal, MD, co-director of the lymphoma program at Rush, hope to find more efficient ways to treat disease, ways that kill cancer cells and spare healthy ones. And with the ability to monitor how well each individual responds to novel approaches like radioimmunotherapy, doctors hope to customize treatments even more. When it comes to treating cancer, finding a therapy with a perfect fit makes all the difference — not only in terms of how long patients live but in terms of *how well* they live.

Photography by Kevin Horan

From Resident *to* president

Interview by Sean Carr

When word went out last spring that Rush was launching a nationwide search for a new president and CEO, more than a few people felt that the hunt didn't need to go much farther than a few doors away, to the office of Rush's then senior vice president for medical affairs and dean of Rush Medical College, **Larry Goodman, MD.** After a quarter of a century at the Medical Center, and at the height of a distinguished career as a clinician, researcher, teacher and administrator, few knew Rush as well or were as qualified to lead it. Last winter, Goodman got the job, and he hit the ground running.

***RushRecord* recently caught up with Larry Goodman, MD, to discuss his career thus far and to hear about his plans for Rush.**

How did you get your start in medicine?

I actually went into medicine without a huge understanding of what it entailed. I majored in English in college, thinking I might pursue it in graduate school. But at the same time, several of my summer jobs were in hospitals, because I was also thinking medicine might be an enjoyable and exciting career. The Veteran's Administration hospital had a program in which students could rotate through various laboratories, so I did that one summer. I worked at another hospital as a kind of orderly in surgery: I shaved patients in the morning in preparation for their surgeries and transported them to the operating room, things like that. In the end, I chose medicine over English because when I thought about it, what I liked most about English was writing, and while there were plenty of doctors who made use of their writing skills, there weren't too many English professors who also took care of patients.

Photography by Bill Richert

A conversation with Rush's new president and CEO

Why did you choose Rush after medical school?

I actually had some friends in Chicago who were strong proponents of Rush. They felt that it was the best program in the city for internal medicine training. It was really on their recommendation that I interviewed for the program; I hadn't heard much about it. But I liked what I saw during the interview process, so I came here as a resident in 1976. By 1979, when I was chief medical resident, I was also doing a fellowship in infectious disease. Then, in 1982, I was invited to join the faculty and staff.

When did you first get involved in the administrative side of medicine?

My responsibilities as chief resident were partly administrative, and I've had a job in administration — at least part time — from that moment to this. I ran a program Rush used to have for students who had trained in Mexico but needed an additional year of training before they could practice in the United States. Then I was assistant dean of the clinical curriculum — in charge of the third and fourth years of the medical school — for five years, and then associate dean for nine years after that. I went to Cook County Hospital in 1996, as medical director, and then came back to Rush as senior vice president for medical affairs and then became dean of Rush Medical College. So I've always had an administrative job.

How have you balanced your administrative and clinical roles?

I think they have usually overlapped pretty nicely and actually complemented one another. It's not like they're compartmentalized — mornings in the dean's office and afternoons on rounds. It was never like that. On a typical day, I was easily spending three, four or five hours on administrative things and maybe the equal amount of time with patients, but it was never morning versus afternoon. As I took on more and more administrative responsibility, it got harder to do as much of everything — to make rounds, to see outpatients and to teach. But I continued to do it largely due to the tremendous support I received from my colleagues in the Section of Infectious Disease. They have always been there to step in when an administrative matter has come up. By going on rounds, I've been able to see how the hospital works, and to see how the decisions that we make, and the changes that result from those decisions, affect our patients. That's the only way to tell if a change has been successful. I also think it's been valuable for the medical students to see me on rounds, where they can see me not just as an administrator but as someone with a direct hand in patient care. Plus, I love taking care of patients.

Speaking of patient care, you have clearly made it a priority.

Patient care has always come first at Rush. That's nothing new. What I really want to stress is that it's not just excellence in patient care that's important; people also have to be able to access that care easily. It's that philosophy that is driving most of the changes we're making at Rush today. We've been focusing on our many "front doors," the places where patients first access care at Rush. One of those front doors is the emergency room, and we've done some terrific things there in the last year. We have a whole new group of doctors in the ER, all of them specially trained in emergency medicine, and they're using new information technology — voice recognition dictation and computerized patient tracking — to help them work more efficiently so they can focus more of their energy on caring for patients. As a result, we've reduced wait times in the ER between 20 and 30 percent. We probably have the shortest wait time — from the time a patient is seen by a nurse in triage to the time that he or she sees a doctor, about 35 minutes — of any hospital in the city. Another front door is the Rush Breast Imaging Center. There again, we have an almost entirely new team, and before they took over last summer it could take up to several months, from the time you called to schedule an appointment to the time that you walked in the door, to get a screening mammogram. That has been a citywide problem, but today, at Rush, that wait is now down to 24 to 48 hours, and we've made comparable improvements in the scheduling of diagnostic exams and biopsies. We've done that by providing the right people with the right equipment in the right space. Now we're looking at other outpatient areas, to see how we can better coordinate their activities so that patients can come in for appointments with multiple specialists or get several tests without long waits and without having to walk all over the place. Service like that will make our commitment to patient care obvious to everyone who comes to Rush.

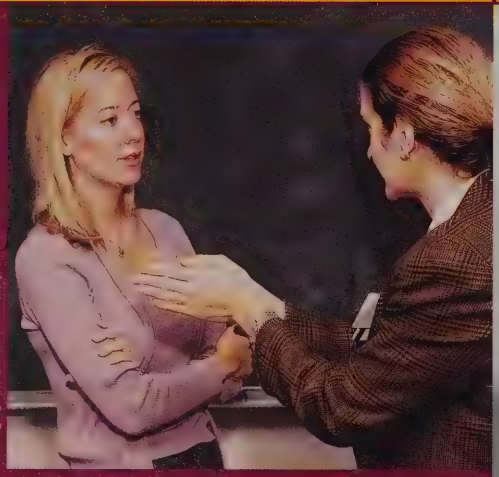
Where would you like to see Rush in 10 years?

I would like to see it even more widely recognized as an institution that puts patient care first. I want it to be recognized as the place to come to when you have a complicated medical problem, as the place to train when you want to emerge from your training program as an outstanding practitioner, and as the place where outstanding research is done — and integrated as closely as possible with the care that we give our patients. ■

The Nation's Ne

To use science and compassion to care for those in need; to work where you w
So where are the mile-long lines of anxious job applicants? Where are the eag

Where are the nurses of tomorrow?



Photography by Andrew Campbell

In their first year in the BSN program, students like Allison Skae spend time in the classroom, in the lab and on patient floors. Here Skae asks her instructor a question before her health assessment class.

Photography by Kevin Horan

Photography by Andrew Campbell

Nursing student Josh Taber talks to a patient in the Johnston R. Bowman Health Center. Working with patients is a key component of the educational experience in the Rush College of Nursing.

ed for Nurses

by Jill Waite

t and when you want; to have a lifetime of career choices. Sounds like nice work.
aces ready to make a difference?

In patient care areas in the hospital, Rush nurses like Claire Jones, RN, are often at the center of a patient's experience.

Over the years a nursing career has attracted thousands — from people like Dorothy Yates, who graduated from Presbyterian Nursing School 65 years ago, to current Rush nursing students Josh Taber and Allison Skae. But from 1995 to 2001, nursing schools confronted a significant decline in enrollment, with the number of students entering baccalaureate programs dropping 21.1 percent and the number of graduates dipping by 16.5 percent according to the American Association of Colleges of Nursing. Concerned about their ability to meet the growing demand for nurses, nursing schools around the country stepped up their recruitment efforts. And if last fall's 3.7 percent upswing in enrollment is any indication, those efforts are starting to pay off, but there's still a long way to go.

"Nursing offers a career rich in opportunity, custom-made schedules and professional satisfaction," says Kathleen Andreoli, DSN, RN, dean of the Rush College of Nursing. And yet the profession faces a workforce shortage that has put a major strain on hospitals across the country. According to the American Hospital Association, nursing accounts for 75 percent of all hospital job vacancies, with 126,000 nurses currently needed to fill empty positions at our nation's hospitals. Although nursing personnel from temporary agencies have helped fill that void, this costly approach only puts an additional strain on medical centers and hospitals, many of which are feeling the financial squeeze of managed care and Medicare reform. And, to make matters worse, experts project the demand for nurses will dramatically increase in coming years. According to the U.S. Department of Health and Human Services, by 2010 there will only by 635,000 registered nurses to fill 1.8 million spots.

So it's no surprise that recruiting and retaining nurses has become more than just another item on health care's long list of "to dos" — it has become a top national priority.

Photography by Andrew Campbell

In the health assessment lab setting, Allison Skae applies what she has learned in the classroom – she evaluates another student's arm to check for signs of skin cancer.

Well aware of the obstacles it faces, Rush has put a full-court press in place to help meet national nursing needs as well as those in its own patient care units. Consistently ranked in the top 5 percent of all nursing schools offering graduate degrees by *U.S. News & World Report*, Rush is well qualified to meet the challenge.

The shortage

Today's shortage — and the future's troubling outlook — can be attributed to society's growing demand for nurses and the shrinking supply of qualified personnel. As the nation ages and the number of hospital admissions increases, so does the need for nurses. And not just any nurse will do, says Jane Llewellyn, DNSc, RN, associate vice president of nursing at Rush. The fast-paced world of medical technology and the plethora of pharmaceuticals available are just two reasons why highly skilled nurses are needed in hospitals, says Llewellyn. That's why Llewellyn prefers hiring nurses with bachelor's degrees and, ideally, nurses with advanced practice degrees.

Although both associate's degrees and bachelor's degrees prepare students for taking the licensure exam in nursing — which earns them the RN after their names — many experts argue that baccalaureate programs are far better equipped to prepare

Time-line courtesy of Rush-Presbyterian-St. Luke's archives.

1885 St. Luke's Free Hospital establishes its first nursing department. St. Luke's becomes the 35th nursing school in the United States.

1903 Presbyterian Hospital establishes its School of Nursing. It is one of the first to put its students on an eight-hour day, and its three-and-a-half-year program is longer than most schools' programs.

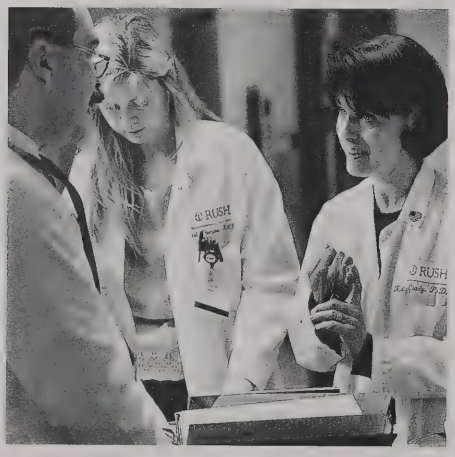
1956 Presbyterian Hospital and St. Luke's Hospital merge leading to a combined school of nursing.

1969 Presbyterian-St. Luke's Hospital, along with its nursing school, merges with Rush Medical College, forming Rush-Presbyterian-St. Luke's Medical Center.

1972 Rush University, which includes the college of nursing, is established.

nurses for what they'll face on the job. Whereas an associate's degree program takes two years, a baccalaureate program requires four, meaning students must take classes in areas such as math, English and the social sciences. "Nurses that come from baccalaureate programs simply have more skills in terms of critical thinking and problem solving," Andreoli says.

The boom in the demand for nurses with bachelor's degrees and above — a plus for nurses in terms of career advancement and salary increases, a minus in terms of workload and stress — has spread the personnel



Photography by Kevin Horan

Once they graduate, many nurses opt for advanced degrees and research careers. Kathleen Grady, PhD, RN, for example, is a clinician, educator and researcher at Rush. She recently received funding from the National Institutes of Health to study quality-of-life outcomes of heart transplant patients.

pool thinly across the many environments where nurses work: hospitals, home care settings, public health clinics, outpatient facilities, nursing schools, pharmaceutical companies and corporations. Hospitals have been particularly hard hit — in the past 15 years, the percentage of nurses working in hospitals has dropped from 68 to 59 percent according to the American Hospital Association. This is due to fewer hospital beds and nursing preferences.

As for the diminishing number of those entering the profession of nursing, much of the decline can be attributed to increased career opportunities for women in general (92 percent of nurses are female). "In my day, a woman had two choices — she could be a teacher or a nurse," says 88-year-old Yates. But that's no longer the case; women now have a multitude of career choices, many of which pull them toward careers with higher pay and what they see as greater social status. Add to that the fact that the nursing population is "aging" (the average nurse is 44 and will be ready to retire in 15 years), and that accounts for even fewer nurses in the future workforce.

Casting a wider net

To tackle the nursing shortage head on, the Rush College of Nursing and nursing leaders in Rush's patient care areas have implemented strategies that will attract promising students to Rush's nursing college, bring highly skilled nurses to work at Rush (and other hospitals) and keep Rush's talented staff nurses satisfied with their jobs and place of employment.

Part of recruiting students has involved casting a wider net, a net that will encourage minorities and career-changers to join a profession that is 90 percent white. As the demographics of the current Rush baccalaureate students show (58 percent are white; 18 percent, Hispanic; 15 percent, Asian; 6 percent, black; and 3 percent, "international"), Rush has been successful in attracting an ethnically diverse student body by recruiting. As for career-changers, Rush has actively pursued other service-oriented groups in the hope of finding good matches. For example, Rush reached out to employees affected by the United Airlines layoffs, hoping to attract men and women who already had a track record of helping others.

For 27-year-old Allison Skae, a career changer herself, nursing seemed like a logical next career step. "I worked as a dietitian, but I thought nursing would be much more fulfilling and hands on."

Addressing misconceptions

One of the main challenges facing nursing recruiters, though, is the public's notion of what a nurse is and what a nurse can be, says Andreoli. "Nursing is misunderstood," Andreoli says. "People see ER and they think that's what nursing is all about, but that's just one kind of nursing job. In nursing there's a myriad of choices from home health to research to health policy to school health to quality assurance."

Nursing research, for example, has been a source of many innovations in health care. At Rush, researchers with advanced nursing degrees pave the way for improved patient care every day by investigating such diverse topics as nutrition and AIDS, the effect of stress on caregivers of patients with Alzheimer's and the effectiveness of community-based training for parents and teachers of toddlers. And in 2001, nursing research brought in more than $4 million dollars in grants.

Rush staff — and many of its alumni — are in high schools, junior colleges and colleges, trying to get the message to students and school counselors, but they're often confronted with a bias against nursing. "When a student voices an interest in nursing, counselors often steer them in a different direction," Andreoli says. "Many counselors say, 'You're smart, you should be a doctor, not a nurse.' So we try to educate them about nursing and why smart women and men have chosen it as their profession."

As for the medicine vs. nursing dilemma, many in the field would gladly argue that nursing provides the kind of continuity of care that no other health care profession can. "A nurse is really the center of the patient's experience," says Llewellyn. "All other care

Luther Christman, PhD, a nationally known nurse educator, becomes the first male dean of nursing in the United States and ushers in the modern era of nursing. He introduces the Rush Model for Nursing, which stresses a faculty comprising expert clinical nurses, use of physician-nurse teams, quality assurance and research.

1973

Rush University formally establishes its degree nursing program, which combines education and practice as the Presbyterian-St. Luke's diploma nursing school had done.

1987

Kathleen Andreoli, DSN, RN, is named dean of the Rush College of Nursing. During her tenure, 2,342 students have graduated, two endowed chairs have been created, 46 online courses have been initiated, 15 graduate advanced practice nursing programs have been implemented and the college has received 18 million in research and training funds.

The Rush College of Nursing continues to rank in *U.S. News & World Report's* list of top nursing schools offering graduate degrees.

2001

providers, including physicians, are in and out of a patient's life episodically. The nurse is the one who is there around the clock, coordinating it all, and the nurse is the one who often acts as the patient's guiding light."

Students Skae and Taber wanted to become nurses — not doctors — for just that reason. "I get satisfaction out of doing things for people that they would do for themselves if they could and being there to help people get through difficult times," Taber says. "When I worked in a community hospital after I graduated from college, I saw nurses caring for patients on a personal level — helping them find support services, talking to their families, explaining complicated procedures — and I was inspired."

Two birds, many stones

To encourage qualified students to enroll in its baccalaureate program and ensure that Rush's hospital staff is well educated, Rush offers a tuition scholarship to BSN (bachelor of science in nursing) students who agree to work at Rush for two years after their graduation. For Taber — who already has a bachelor's degree in liberal arts — this tuition benefit made his decision about the Rush College of Nursing even easier. Based on recommendations from family and friends in health care, Rush was already a leading choice, with its diverse student and patient population.

In his first year at Rush, Taber is fully immersed in academic medical center life. In addition to attending classes and labs and working alongside his instructors in Rush's Johnston R. Bowman Health Center, Taber also works as a nursing assistant in Rush's intensive care unit. "I like to get my learning in as many ways as possible," he says. "That way I can learn all the more." Once he gets his license and is working at Rush as an RN, Taber hopes to earn an advanced degree at the Rush College of Nursing with the financial help of the employee educational assistance program.

The college is also planning to initiate an accelerated bachelor's degree program this year, which allows students with college degrees meeting specific academic criteria to get their BSN in one year as opposed to two (all baccalaureate students come to Rush in their junior year). This program satisfies both students eager to move forward with their nursing careers and the nurse-needy health care system. Other innovative incentives offered at the Rush College of Nursing include online courses, which give students the freedom to attend class from their homes — a huge perk for those juggling jobs, children and school.

Keeping good nurses satisfied

But what about the nurses who are already working in hospitals? How do administrators like Llewellyn attract new nurses and keep good ones from being lured away? "We're in need of nurses, there's no doubt, but our vacancy rate has remained steady over the years because we pay competitive salaries and we've got nurses working every combination of schedule you can imagine. We even have schedules for those who want to work weekends only. In some units, they schedule themselves; they determine as a group how their work is going to get covered." The hospital's close relationship with the College of Nursing is an added benefit. "A large percentage of our staff nurses pursue advanced degrees at the college, so that's a definite plus," she says.

But freedom and financial support aren't the only rewards. The shared governance model at Rush — which brings together nurses, doctors and hospital administrators to make decisions involving clinical care — provides nurses an avenue to make changes in practice at the bedside, says Liz Krch-Cole, RN, president of the Professional Nursing Staff. "This system gives nurses a better sense of being professionals because we have input, and we are an integral part of the decision-making process," she says. At Rush nurses play leading roles in patient education, quality assurance and ensuring efficiency in patient care.

Like nursing itself, the recruitment and retention process is tough work — and so far no one solution has become apparent. But if efforts like the ones at Rush succeed, everyone wins: those entering the profession and those of us who will benefit from the care they'll provide, the leadership they will offer and the research they'll produce. The bottom line is that nursing, in all its incarnations, can be a fulfilling and rewarding career. Just ask Dorothy Yates, who retired in 1978 after working 43 years as a nurse — in a hospital, in a nursing school and in a major corporation — and who would come back to work in flash. "If they'd take me, I'd be there." ■

"A nurse is really the center of the patient's experience," says Llewellyn. "All other care providers, including physicians, are in and out of a patient's life episodically. The nurse is the one who is there around the clock ..."

Gender Matters:

Giving female athletes the specialized care their bodies demand

by Judy Grossman

more women professionals
to weekend warriors, women are
participating in sports in greater
numbers and with greater visibility than
ever before. Not only is it acceptable for
girls and women to play sports, they are
encouraged to "just do it" as free-spirited
men and women do. The benefits — healthier and
sexier, higher self-esteem, fun and, in the
case of many elite athletes, a paycheck

That wasn't always the case, however. Not only were women once deemed too weak and delicate to be athletes, it was widely believed that vigorous physical activity actually posed a health risk for women.

And so for centuries — beginning with the exclusion of women from the first Olympic Games in 776 B.C. and continuing well into the latter part of the 20th century — women were largely shut out of competition. It wasn't until the 1972 passage of Title IX, which prohibits gender discrimination in federally funded education programs, that the floodgates opened and the rise of women's sports began.

The unique woman

These days, with most of the gender taboos long gone, women compete — successfully and in ever-increasing numbers — in every conceivable sport, including those once considered bastions of maledom: rugby, wrestling, ice hockey, football and boxing.

But although women participate in the same sports as men, it's important to note that they are not the same as men. A woman's body, regardless of how strong and well conditioned, still differs from a man's in certain indisputable ways that go beyond the obvious physical traits.

That's why it's essential to have sports medicine specialists, such as Kathy Weber, MD, MS, assistant professor in the Department of Orthopedics at Rush, who are attuned to the needs of female athletes. "Treating female athletes requires being aware of the whole spectrum of women's problems and issues, because some of the things that make women unique may also make them more susceptible than men to certain types of injuries," Weber says.

For instance, a woman's pelvis is shaped slightly differently than a man's, and the angle between the femur and the tibia is larger in women, which creates a different type of stress on the joints. Women also land differently than men when they jump, and have a more stiff-legged, upright posture than men when they run and pivot in high-impact sports such as soccer, basketball and volleyball.

Those factors could account for the fact that women are three to eight times more likely than men to tear the anterior cruciate ligament, the main stabilizer of the knee, and that women are more prone to stress fractures. It's also possible, however, that the disparity is related to estrogen production; there are ongoing studies looking into the role estrogen may play in ACL tears and other types of injuries.

Treating the whole athlete

In addition to being more susceptible to certain types of sports injuries, female athletes must deal with other gender-related issues that can affect athletic performance, such as pregnancy, menstruation and even finding the right sports bra.

"There are a lot of questions about sports bras — at what age do you need to start wearing one? How do you know if it fits?" Weber says. "You can, in fact, injure your breasts if they aren't supported properly, but that's not something women and girls automatically know, and it's certainly not something they would think to ask an orthopedist about."

Kathleen M. Weber, MD, MS, shown here at the Union Station Multiplex, recognizes the importance of having women's sports medicine specialists to treat the unique and myriad needs of female athletes.

But they can — and do — ask Weber. Weber, who treats both women and men, is one of only a handful of women's sports medicine subspecialists in the country. She draws from her combination of specialties — she is board certified in internal medicine and sports medicine and has a master's in exercise physiology — to treat the whole athlete, not just the athletic injury.

She often sees patients who have problems not traditionally handled by orthopedists, from a new mother who sustained ligament damage while delivering a 12-pound baby vaginally, to a rail-thin professional dancer who was contemplating going on a diet because her choreographer told her she looked fat.

"Women's sports medicine is not just about treating an athlete's injury and getting them back on their feet," Weber says. "It's about making sure they don't have any issues or underlying problems that may affect their health, now or in the future."

For example, humans develop their peak bone mass in their teens and 20s. But if, during those crucial developmental years, bone density is slowed by low estrogen production due to an eating disorder or intensive athletic training, a woman may enter her 30s and 40s with low bone mass. That will greatly increase her risk of early fractures and, down the line, osteoporosis.

So during an initial exam, Weber asks her female patients — regardless of age — how much dairy they consume and whether they are taking calcium supplements. "If they're not getting enough calcium, I encourage them to increase their intake, or I may send them to a nutritionist. If they're not taking it in, they're not going to develop adequate bone mass," she says. "I also always ask girls and women about their menstrual cycle, because if there's an abnormality, we need to identify what the problem is and intervene as soon as possible."

Though it might seem obvious to expect that physicians will ask teenage girls and women about their periods, not all orthopedists do. While giving a talk last year to a group of about 35 orthopedic residents, Weber inquired as to how many of them, during an initial physical exam, asked their female patients about menstruation.

"Only three physicians raised their hands — three of 35. Part of it is because orthopedists are not trained to do it, but the other thing is that they may not be comfortable doing it," she says. "But it's important to be attuned to the signals that a woman's body sends out — an irregular period, for example, or low bone mass. I've seen women with multiple stress fractures who actually had underlying nutritional problems that no one else had ever looked at before."

Back on track

That's why Weber does a complete primary care exam for all of her first-time patients. "This way I can get a good sense of who they

"This experience taught me a lot about my overall health," Dissanayake says. "It started off just being an injury that kept me from running, but it uncovered some more important issues for the long run. I don't want to be an 80-year-old woman who breaks her hip."

are and what I can do for them," she says. Based on a patient's specific needs, she may then refer them to other specialists, including sports nutritionists, orthopedic surgeons, physical therapists, exercise physiologists and rheumatologists.

Patients benefit tremendously from this comprehensive approach to care — and for many, such as 34-year-old Amy Dissanayake, the benefits are both profound and enduring.

Dissanayake, a concert pianist and avid recreational runner who lives in Hyde Park, suffered a femoral stress fracture last year while training for her third marathon. But as it turned out, the fracture, while painful and disruptive, wasn't her biggest problem.

She went to a local sports medicine clinic in July with a nagging injury, which was diagnosed as a pulled hip flexor muscle. She was told that she could continue to train on a modified schedule, but when she did try to run, the pain gradually intensified. In September, she was finally sent for an MRI, which, to her surprise, revealed a stress fracture in the femur, or thigh bone.

"During those two months, I became increasingly off balance when I ran because of the hip flexor injury, and that's probably why the stress fracture developed," Dissanayake says. "I was really disappointed, because I felt the doctors at this clinic took the whole thing too lightly and gave me bad advice. It seemed they were just trying to paste me up and get me back out there."

Then, on a friend's recommendation, Dissanayake went to see Weber. During the initial exam, Weber sent her for a bone density scan, which revealed osteopenia, or a decrease in bone tissue, a condition that increases the risk of fractures and can lead to early-onset osteoporosis if left untreated. "I had no idea," Dissanayake says. "Here, I was just worried about whether I'd be able to run again. Finding out I had early bone loss opened up a whole other door that I hadn't really considered before."

Photo by Andrew Campbell

Thanks to the comprehensive treatment she's received at Rush, Amy Dissanayake is back on track and feeling confident about her overall health.

But once she found out about the condition, she could begin addressing it. In addition to treating Dissanayake's stress fracture, Weber referred her to Rush rheumatologist Charlotte Harris, MD, who is attempting to uncover the cause of the osteopenia to see whether anything can be done to slow down the process and prevent further bone loss.

"This experience taught me a lot about my overall health," Dissanayake says. "It started off just being an injury that kept me from running, but it uncovered some more important issues for the long run. I don't want to be an 80-year-old woman who breaks her hip."

Achieving balance

Dissanayake is now easing back into running after a 10-week layoff and months of physical therapy and cross-training. She is working with the physical therapist Weber recommended to improve her strength and correct an imbalance on her right side that may have contributed to the stress fracture. And, just as important as getting her physical strength back, she is gaining new confidence.

"If it was just a matter of running again, I probably could have rested on my own for a couple of months and then started again," she says. "But I feel Dr. Weber is giving me the direction not just to get back on the road, but to achieve the overall balance that will keep me healthy and active for life." ■

At the Ready

by Anne O'Reilly

Like many Americans, Chicagoans have been on edge since the terrorist attacks of Sept. 11. And because they live in the nation's third largest city, which is home to two of the tallest buildings in the world, Chicagoans feel particularly vulnerable. Just as the eerie absence of the Twin Towers reminds New Yorkers of past horrors and the potential for further devastation, the majestic presence of the Sears Tower reminds Chicagoans of what could have been and what still could be.

Rush employees see the Sears Tower every day — on their drive to work, from the subway platform where they await the trains that take them home, from their office windows where they look upon the city's skyline. The building stands as a symbol of the uncertain times in which they live and how critical it is for them, as hospital personnel, to be prepared.

Since the terrorist attacks and the anthrax cases that followed, hospitals throughout the country have had to take a closer look at their levels of readiness in the event of a disaster. Do hospitals have the resources to treat hundreds of wounded? Are staff prepared to respond at a moment's notice? Can doctors and nurses distinguish between the flu and anthrax? Many cities faced these scenarios as realities, while others readied for the worst. As an integral part of any emergency plan, hospitals — along with police, fire, rescue and other public safety services — must imagine what was once unimaginable and be prepared to handle any kind of crisis. Because today, a hospital's most horrific nightmare can become a nation's reality.

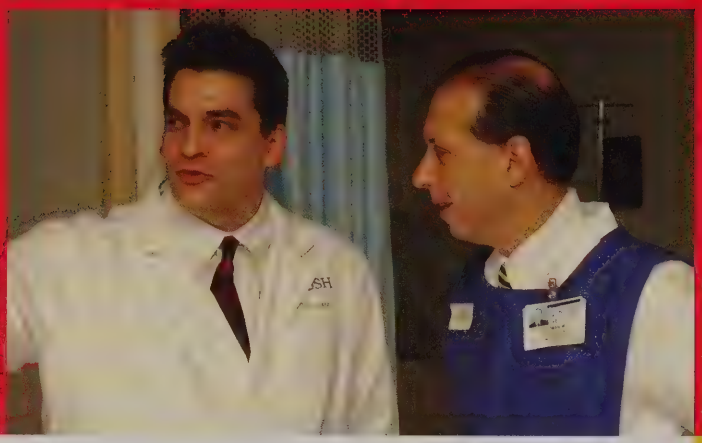
U.S. Secretary of Health and Human Services Tommy Thompson highlighted the role of the medical community's emergency readiness in comments he made last October before a Senate Appropriations Subcommittee on Labor, Health and Human Services, Education and Related Agencies. "We must continue working with state and local public health systems to make sure they are strong and prepared," he said. "This will include developing response and contingency plans, making sure they have the tools to respond, and educating their medical community."

Rush, like academic medical centers across the nation, is answering that call. It has stepped up its emergency preparedness efforts in order to be as ready as possible to respond not only to traditional disasters, but to terrorist attacks, which could be carried out with chemical, biological or nuclear weapons. As part of this effort, Rush is working closely with other area hospitals including Cook County Hospital and University of Illinois.

Leading the charge at Rush is Dino Rumoro, DO, clinical chairman of the Rush Department of Emergency Medicine and chairman of the emergency preparedness committee at Rush.

Rumoro can talk about recent disasters such as those in Chernobyl, Tokyo, Oklahoma City, Washington, D.C., and New York City, using details that many would rather not know. He can rattle off numbers of victims, how they were treated and what hospitals were involved. He can tell you what was done right, what was done wrong and what needed to be done better.

preparing for disaster



Photography by Bill Richert

Rush President and CEO Larry Goodman, MD (right), talks with Dino Rumoro, DO (left), clinical chairman of the Department of Emergency Medicine and chairman of the emergency preparedness committee at Rush, during the drill.

Photography by Bill Richert

Every effort is made to make Rush emergency drills as real as possible. That's why Sylvia Westbrook, a Rush volunteer — and an artist who has been trained to do makeup for emergency drills — takes special care to apply makeup so it appears as though there is a serious injury.

Photography by Bill Richert

In Rush's disaster drill, Suzanne Smith, MPH, wellness coordinator at Rush, was made up to look like a victim of a subway accident. She was one of a dozen volunteers who helped test Rush's emergency readiness.

It's an essential part of his job to know the details. He needs to know exactly how previous disasters have been handled — for better or for worse — in order to be as ready as possible for future emergencies.

"Before Sept. 11, when you talked about major emergencies, those of us who are specialists would say, '*When* something like this happens' while others would say, '*If* it happens.' Now people are listening to us more closely, taking emergency preparedness even more seriously," Rumoro says.

While Rush has always had an emergency preparedness plan, improving the plan became a top priority last fall. Since then, Rumoro has led a committee of 50 Rush leaders from across the institution to review policies, consider possible disaster scenarios and map out plans to handle them. The group, which meets monthly, also has 16 subcommittees that are examining specific issues such as how to handle biological or chemical disasters, along with basic needs that would be valuable in any emergency, including education and communication.

And how do you plan for a disaster when it's unknown? "We're coming up with every different scenario that we can — from a crop-duster flying over Chicago with a biological agent to a natural disaster that has mass casualties," Rumoro says. "We're always keeping in mind what would be the greatest good for the greatest number of potential survivors."

> "We are working to create a true hospital-wide system," Rumoro says, adding that keeping normal activities in mind can help. "You have to create a plan that's as close as possible to normal operating procedure, so people will remember it."

According to Rumoro, Rush's zeal for putting together such a broad plan sets it apart from other institutions. "The involvement of our committee and the work of our subcommittees has put us farther along than many hospitals," Rumoro says. "No one in our area is coming up with as comprehensive a plan as we are. We're one of the few hospitals in the state that's looking at everything from possible scenarios to how departments work together."

While Rush's ER has handled its fair share of disasters, including a Chicago subway crash and a chemical spill on the Eisenhower expressway, Rush doesn't work alone in the event of a disaster. Rush

is part of a group of hospitals that respond collectively to handle victims and triage them to various area hospitals in order to treat them quickly and effectively.

To test the emergency plan at Rush, a drill — complete with Rush employees made up as victims — took place in December. The drill simulated a subway accident and involved 12 employees acting as victims. To make the drill seem more real, those employees were made up to look like they were involved in a subway crash.

Rush Nursing Systems employee Connie Weissman watched volunteer Sylvia Westbrook apply makeup to her hand to simulate a serious injury.

"I'm almost in pain just looking at it," said Weissman, who winced as she studied her arm. Westbrook was trained as a makeup artist for emergency drills by the Metropolitan Chicago Health Care Council.

After all the victims were dressed for their parts, ranging from minor cuts and bruises to deadly injuries, they learned a little bit about how they should act. A few took turns practicing how they would describe their symptoms or how they would scream. Shortly after, they took their places outside the emergency room to simulate being dropped off in ambulances. Quickly, the victims acted out their roles and were taken to the ER and treated by Rush staff. Each was admitted, examined, questioned about their injuries and referred for special tests as appropriate.

"Before Sept. 11, when you talked about major emergencies, those of us who are specialists would say, '*When* something like this happens' while others would say, '*If* it happens.' Now people are listening to us more closely, taking emergency preparedness even more seriously," Rumoro says.

Security locked doors; operators answered telephone calls; an emergency paging system alerted staff; Rush leaders reported to a command center; media relations specialists went to meet reporters who would be on the scene; and Rush chaplains, psychiatrists, psychologists and volunteers waited to talk to victims' families.

What's the purpose of such a drill? To figure out what would work and what wouldn't work in an actual emergency situation. After the drill, Rumoro met with leaders of different departments as well as the "victims" to discuss everything from employees' opinions on how they were treated as patients to ideas to better communicate and coordinate efforts throughout the campus. They came up with some preliminary plans to improve the process, like the need for different colored hats in the emergency room, to make it easier to identify the attending doctor or the charge nurse.

"This drill served its purpose," Rumoro says. "It uncovered some things that we'd like to improve." Most important, it gave everyone a chance to test out their roles — and ask questions before an actual emergency. Rumoro plans to schedule several drills a year at Rush.

And drills aren't the only chance for Rush staff to test their emergency response skills. In February, many staff underwent training by the

Rush nursing system support analyst Connie Weisman, CPA, is wheeled into the emergency room during the drill.

Illinois Mobile Emergency Response Team, a statewide effort to respond and assist with emergency medical treatment at mass casualty incidents, including those involving chemical, biological and radiological agents. In addition, many Rush staff also were trained earlier this year by expert consultants to handle emergency situations involving hazardous, chemical, biological and radioactive materials.

This training is essential because the new threats to our country require hospital staff to have a new type of expertise. "The new disasters that we're talking about today are different because they're chemical and toxicological disasters," Rumoro says. "We have all the right people to handle those here at Rush — board-certified physicians who know how to deal with many different situations, including experts in infectious disease and toxicology. And we have the capacity to decontaminate victims in cases of exposure to hazardous materials."

In the months that have followed Sept. 11, the nation has worked together to face the terrorist threat in many ways. Nowhere is that more evident than in hospitals like Rush, where staff members hope for the best but plan for the worst. ■

Anthony Viteri, RN, simulates cardiopulmonary resuscitation.

A hip new approach to joint replacement surgery

As people grow older, physical activity can become increasingly difficult due to chronic joint pain caused by arthritis, osteoarthritis or other problems. But thanks to recent advances in joint replacement, more and more people can now get relief from their pain and remain active well into their "golden years."

One of the latest advances is a minimally invasive approach to hip replacement surgery that is done through a few small portals instead of the large, 12- to 18-inch incision used in traditional hip replacement surgery. Because the new surgical approach involves less cutting of muscle, tendons and ligaments, patients experience less pain, recover more swiftly and usually go home the day after surgery — compared with a four- to five-day hospitalization with the traditional surgery.

"We use a cementless prosthesis that grows into the bone, and many patients walk out of the hospital on crutches the day after the operation," says Richard Berger, MD, an orthopedic surgeon at Rush, who is involved in a 120-patient research study to evaluate the effectiveness of the new surgical approach in reducing pain and bleeding and speeding up recovery time.

The same prosthetic hip implants used in traditional hip replacements are used with the new technique. The study focuses solely on the techniques used to access the hip, remove the damaged bone and insert the prosthesis.

According to Berger, the surgical technique involves new ways of getting into the hip through smaller incisions — which have a combined length of three to three-and-a-half inches — yet still allowing sufficient room to cut the bone and insert and place the components of the prosthetic hip. The instrumentation used in hip replacement surgery was modified or redeveloped to accommodate the new approach. The first minimally invasive hip replacement of this type in the country was done at Rush in February 2001.

Photography by Kevin Horan

Richard Berger, MD, an orthopedic surgeon at Rush, is using smaller incisions for hip replacement surgery.

Hip replacement surgery is most commonly performed for individuals with severe, chronic pain associated with osteoarthritis that cannot be controlled through the use of various medications or physical therapy. About 300,000 hip replacements are done annually, with projections for as many as 600,000 per year by 2015. ■

Putting sleep apnea to rest

Snoring — the raspy, rattling sound that occurs when air cannot flow freely through the throat passage — can disrupt sleep. But it may also be a sign of a more serious problem: a disorder called sleep apnea.

People with sleep apnea literally stop breathing while they are sleeping. These pauses, which can occur hundreds of times during the night, last anywhere from 10 seconds to a minute — sometimes even longer.

Sleep apnea affects more than 12 million Americans, making it as common as adult diabetes. And if left untreated, it can create serious health consequences, including unrelenting fatigue, high blood pressure, heart attacks, depression, impotency and weight gain. In children, sleep apnea is often associated with poor school performance.

Because an obstructed airway often triggers sleep apnea, one conventional surgical treatment has been a tonsillectomy, an inpatient surgical procedure that has painful side effects and a two-week recovery time.

But now Rush offers an innovative alternative: an outpatient procedure that uses radio frequency energy — similar to microwave heat — to shrink the tonsils rather than remove them. During the procedure, a wand is put into contact with the surface of the tonsil and held in place for 10-15 seconds at a time, removing tissue layers and shrinking the tonsils.

The procedure eliminates surgical risks, such as bleeding. The patient goes home the same day and recovery takes only a day or two, with little postoperative pain. Research on 150 patients who underwent radio frequency found that more than 90 percent resumed a normal diet and activities — without the need for narcotic pain relief — within 48 hours of the procedure. "Radio frequency has been used to shrink soft tissue in other parts of the body, but we're the first to use it on tonsils," says otolaryngologist Michael Friedman, MD, director of the Section of Head and Neck Surgery. "Even more important, our patients — and their sleeping partners — notice a dramatic improvement." ■

Sleep apnea affects more than 12 million Americans.

A good match for heart patients

Can a mechanical heart assist device improve both survival rates and quality of life for patients with end-stage heart failure who are ineligible for heart transplants?

That was the question addressed by the landmark REMATCH study. And based on the results, which were published in the *New England Journal of Medicine* and presented at the American Heart Association's Scientific Sessions, the answer appears to be yes.

As part of the REMATCH trial, Rush was among the first medical centers in the nation to use the HeartMate VE implantable left ventricular assist system (LVAS). Circulatory support devices, such as the LVAS, are used to take over the natural pumping function of a diseased heart that is no longer able to circulate a sufficient amount of blood on its own.

HeartMate is already FDA-approved for use as a "bridge to transplant," sustaining the lives of patients while they wait for a donor heart to become available. The goal of the REMATCH trial was to evaluate the heart assist device as a permanent treatment therapy for end-stage heart failure patients who are ineligible for heart transplant due to age, diabetes or other health issues. Investigators looked not just at survival rates, but also quality of life and cost effectiveness in comparing the LVAS with drug therapy.

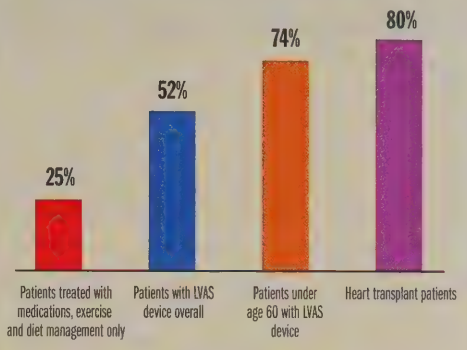
The study showed that the one-year survival rate for participants with HeartMate was 52 percent, compared with 25 percent for patients treated with a combination of drug therapy, diet management and exercise. This represents a 36 percent reduction in mortality among patients implanted with the device. And the one-year survival rate for patients younger than 60 was even more dramatic — 74 percent versus 33 percent. The 74 percent rate compares favorably with the 80 percent one-year survival rate for heart transplant patients.

Just as important, LVAS patients reported significant increases in quality of life at one year. They felt better, were more mobile and had a more positive state of mind.

If HeartMate gets FDA approval, it would mark the first time a mechanical heart assist device has been approved for use in non-transplant candidates — and it would dramatically change the way heart failure patients are treated. For Rush heart patients, this could be good news.

"Because of our participation in this study, we are well equipped and experienced to expand the use of this technology upon final FDA approval," says William Piccione, MD, a cardiovascular surgeon who was the principal investigator for Rush. ■

REMATCH trial: one-year survival rates for heart failure patients



The one-year survival rates for heart failure patients implanted with a left ventricular assist system (LVAS) are substantially higher than those of patients treated only with medications, exercise and diet management.

Extinguishing the fire of GERD

Everyone has experienced a temporarily unpleasant bout of heartburn. But for the 15 million Americans who suffer from chronic heartburn, a condition known as gastroesophageal reflux disease, or GERD, the discomfort caused by food and stomach acid washing back into the throat can be debilitating.

And if left untreated, GERD can lead to other medical problems such as ulcers, asthma, esophagitis — an irritation or swelling of the esophagus — and a precancerous condition called Barrett's esophagus.

Most people with GERD depend on daily acid-controlling medication to relieve the intense burning, chest pain, nausea and other symptoms. But some choose to undergo major abdominal surgery, which requires weeks of recovery.

Rush is the first hospital in Chicago to offer a new, nonsurgical alternative: endoscopic suturing. During the procedure, doctors stitch tiny pleats in the valve responsible for managing the flow between the stomach and the esophagus. These pleats tighten the valve, reducing painful reflux.

The outpatient procedure requires no chest incision, and relief usually comes in a matter of days. "It's a treatment that chronic heartburn sufferers should be excited about," says Rush gastroenterologist John Losurdo, MD.

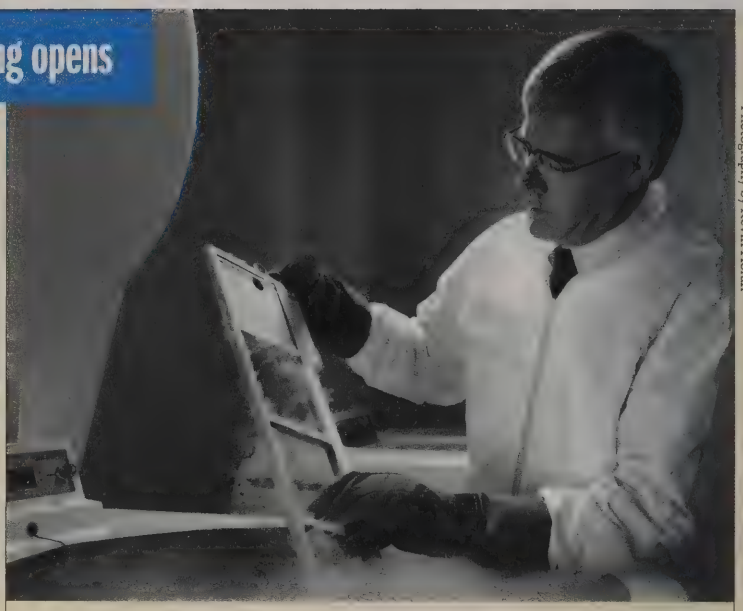
Patricia Danza of Schaumburg, who suffered daily from soreness and burning in her throat, was among the first to undergo the new procedure at Rush. "I lived for years with my misery and over-the-counter antacids," she says. "Just three days after the procedure, my sore throat was gone, and so was my reflux." ■

Gastroesophageal reflux disease, or GERD, is caused by food and stomach acid washing back into the throat. Rush was the first hospital in Chicago to offer a new, nonsurgical approach to treat this condition.

Elmer and Sylvia Sramek Center for Cell Engineering opens

In December, Rush celebrated the opening of the Elmer and Sylvia Sramek Center for Cell Engineering. The Sramek Center is a state-of-the-art cell and tissue engineering laboratory, which produces powerful cancer "killer" cells in mass quantities. These cells and tissue products can be used in combination with other therapies — such as chemotherapy and bone marrow transplantation — to fight cancer and other diseases. "The center is very much like a pharmacy," says Richard Meagher, PhD, the facility's director. "But instead of dispensing drugs, our goal is to dispense cancer-fighting cells."

The facility adheres to rigorous regulatory guidelines to ensure that the production environment is uncontaminated, an extremely important factor when cells for patient use are concerned. The new center is sterile, complete with high-efficiency air filters, nonprorous paint and steel ceilings and floors, all of which complies with federal Food and Drug Administration good manufacturing practices as well as guidelines set forth by the American Association of Blood Blanks and the Foundation of Accreditation for Hematopoietic Cell Therapy. ■



Photography by Kevin Horan

Richard Meagher, PhD, director of the Sramek Center for Cell Engineering, pulls out cells from the liquid nitrogen freezer where they are stored.

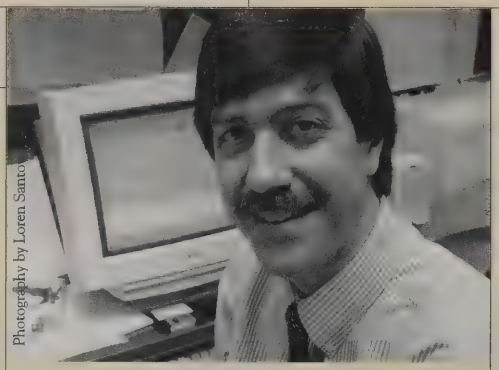
RADC receives NIH grant

A new research study is attempting to identify factors that may prevent people from developing the memory loss that results from common neurodegenerative diseases by increasing or maintaining the human brain's neural reserve capacity — its ability to undergo disease-related changes without losing its ability to function. This could be a key to preventing or delaying the onset of diseases such as Alzheimer's disease.

The "Memory and Aging Project," a five-year study under the leadership of David A. Bennett, MD, director of the Rush Alzheimer's Disease Center, is being funded by a $9 million National Institute of Aging grant. Researchers at the University of Pennsylvania and the University of British Columbia are also involved in the project.

Researchers have known for some time that a wide range of lifetime experiences and variables — including formal education and environment — can reduce the chances that someone may develop the clinical signs and symptoms of Alzheimer's disease. Identifying the factors that enable some people to tolerate the pathological changes that occur in the brain over time can offer a new and potentially powerful method to delay neurodegenerative disease.

"Even relatively small reductions of risk from common disabling conditions will have a major public health impact for future generations," says Bennett. "We want to understand how brain use in childhood and adulthood leads to the development and maintenance of the neural systems that underlies brain reserve. We know that some animals are capable of generating new brain cells and connections between brain cells. Now we will study whether certain activities and lifestyles have an impact on the number of brain cells and their connections in humans, and whether this is a key to increasing neural reserve."



Photography by Loren Santo

David Bennett, MD, director of the Rush Alzheimer's Disease Center, made international headlines when he and his colleagues reported in the Journal of the American Medical Association *that those who frequently engage in mentally stimulating activities are less likely to develop Alzheimer's than those who rarely engage in these activities.*

The Memory and Aging Project will enroll 1,200 people age 65 and older. Participants — who reside in Chicago area retirement facilities, subsidized housing and continuous care retirement centers — will engage in detailed interviews to provide a life history and will undergo yearly evaluations of cognitive and motor abilities. And, since Alzheimer's disease can only be documented by examining brain tissue under a microscope, participants will agree to donate their brain, spinal cord and muscle after death. About 300 people from several facilities have already enrolled.

Bennett made international headlines in February when he and his colleagues reported in the February 13 issue of the *Journal of the American Medical Association* that people who frequently engage in mentally stimulating activities — such as reading and doing crossword puzzles — are much less likely to develop Alzheimer's disease than those who rarely engage in such activities. This study was based on data from the ongoing Religious Orders Study, also funded by the National Institute on Aging and directed by Bennett. The study involves more than 900 Catholic priests, nuns and brothers from about 40 religious orders and societies across the country. The Memory and Aging Project will complement that study by enrolling participants with a wide range of educational backgrounds and lifestyle experiences. ■

Recent appointments at Rush

Jacob H. Fox, MD, has been named provost of Rush University. Fox is chairman of the Department of Neurological Sciences and co-director of the Rush Neuroscience Institute. He has dedicated his career to the study and treatment of Alzheimer's disease and previously was co-director of the Rush Alzheimer's Disease Center. In 1987, he received the Humanitarian Award from the Chicago Chapter of the Alzheimer's Association, and in 1991 he was honored by the association as its "Man of the Year." Fox served as president of the medical staff of Rush from 1997 to 1999, and during that time he was elected an annual trustee and to serve on the board's Executive Committee.

Thomas Deutsch, MD, has been named acting dean of Rush Medical College, Rush University. Deutsch is professor and chairman of the Department of Ophthalmology at Rush. He was named chairman in 1996 and was appointed associate dean for graduate medical education at Rush University in 2000. A past president of the Chicago Ophthalmological Society, Deutsch has served as medical director of the Eye Laser Center at Rush. A 1979 graduate of Rush Medical College, he received the college's Distinguished Alumnus Award in 1998. He also received the American Academy of Ophthalmology Honor Award for his service to the academy and the profession.

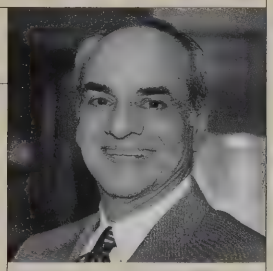
Gunnar B.J. Andersson, MD, PhD, has been named senior vice president of medical affairs. Andersson is the William A. Hark, MD — Susanne G. Swift Professor and chairman of the Department of Orthopedic Surgery at Rush and president of the Rush Medical Staff. His primary interest is in spinal conditions, and his research focuses on epidemiology and occupational biomechanics. He was a member of the National Institutes of Health Orthopaedic and Musculoskeletal Study Section and is currently serving on the Advisory Committee of the National Institute of Arthritis and Musculoskeletal and Skin Diseases. ■

Rush elects new trustees

Joseph P. Bernardini, MD, was elected an annual trustee. Bernardini is an orthopedic surgeon on staff at the South Jersey Hospital System (formerly Newcomb Medical Center). A Diplomate of the American Board of Orthopaedic Surgery and a fellow of the American Academy of Orthopaedic Surgeons, Bernardini is a past president of the Newcomb Medical Staff and a current board member of the South Jersey Hospital System Foundation. He is a 1975 graduate of Rush Medical College and is president of the Rush Medical College Alumni Association.

Larry J. Goodman, MD, was elected a general trustee. Goodman was elected president and CEO of Rush Medical Center on February 13, 2002 (see story on page 12). He previously was senior vice president for medical affairs, a position he held since 1998, and dean of Rush Medical College.

Thomas J. Wilson was appointed chairman of the trustee Investment Committee, replacing longtime chair Wade Fetzer III, who stepped down. Wilson is chairman and president of Northbrook-based Allstate Financial. He previously was chairman and president of Allstate Life Insurance Company and a member of Allstate Insurance Company's senior management team. First elected to the Rush board in 2000, he also serves on the Leadership Committee for the Rush Neuroscience Institute and is a member of the board's Executive Committee. In 1998, he was one of nine chief financial officers chosen for CFO Magazine's Excellence Award. ■



Joseph P. Bernardini, MD

Larry J. Goodman, MD

Thomas J. Wilson

Endowed chairs named

Melody A. Cobleigh, MD, has been named the first Maria Albanese Presidential Professor in Breast Cancer Research. Cobleigh, a distinguished alumna of Rush Medical College, is professor of medicine in the Section of Medical Oncology, Department of Internal Medicine at Rush, and has been director of the Comprehensive Breast Cancer Center in the Rush Cancer Institute since 1995. She is an internationally renowned expert clinician, educator and clinical researcher in the area of breast cancer.

Ali Keshavarzian, MD, has been appointed the Josephine Dyrenforth Chair in Gastroenterology, one of Rush's oldest chairs. Keshavarzian is professor of medicine, professor of molecular biophysics and physiology, professor of pharmacoloy and chief of the Division of Gastroenterology in the Department of Internal Medicine at Rush. He joined the faculty and staff at Rush in July 1999, having previously served as director of the Division of Digestive Diseases and Nutrition at Loyola University Medical Center.

Azra Raza, MD, was named the Charles Arthur Weaver Chair of Cancer Research. Raza is professor of medicine and director of the Section of Myeloid Diseases and the Myelodysplastic Syndromes Center at Rush. Since coming to Rush, she has established the nation's most clinically active and well-funded basic research program in the study of myelodysplastic syndromes and the leukemias that arise from them.

Brendan C. Reilly, MD, was named the C. Anderson Hedberg, MD, Chair in Internal Medicine. Reilly has been chairman of the Department of Internal Medicine at Cook County Hospital, associate chairman of the medicine department at Rush, assistant dean of Rush Medical College and a Rush faculty member since 1995. He has been instrumental in designing, negotiating and administering the academic affiliation agreements between Rush and County Hospital.

Howard Strassner, MD, was appointed the John M. Simpson Chair in Obstetrics and Gynecology and was named chairman of obstetrics and gynecology. He has been acting chairman of the department since June 2000. A renowned specialist in high-risk pregnancy management, Strassner is also co-director of the Rush Perinatal Center and the Rush Regional Perinatal Network and director of the Maternal-Fetal Medicine Fellowship Program. ■

Brian Piccolo: Legacy of a champion

On December 2, 2001, ABC aired its remake of *Brian's Song*, the classic 1970 made-for-TV movie that chronicled the vibrant life and untimely death of Chicago Bears running back Brian Piccolo.

Thanks to the remake and the attention surrounding it, Brian's story was thrust into the spotlight once again, giving us all a chance to remember and honor a man who was, and continues to be, larger than life — a man who became a hero more for his courage than for his athletic skills.

Brian played for the Bears for only four seasons, and his statistics were not remarkable. But the fact that his number, 41, is one of the few retired in the Bears' long history, and that the Piccolo name is still revered by football fans everywhere, is a testimony to the remarkable values Brian brought both to the game and to life.

Brian was just 26 years old when he died of a rare form of cancer, embryonal cell carcinoma, on June 16, 1970. Following his death, his friends in Chicago established the Brian Piccolo Cancer Research Fund to raise money for cancer research. What began as an impromptu fund-raising group comprising Brian's friends, family members and NFL teammates is now a thriving nonprofit organization that so far has raised more than $6 million for cancer research. It is a fitting legacy for a man who battled his illness the way he played football: with the heart of a champion, refusing to give up until the final whistle blew.

The research supported by the fund has made a difference in the lives of many cancer patients. The cancer that killed Brian used to be incurable; today, it has a cure rate of better than 50 percent. And thanks to the millions of dollars raised by the Piccolo fund to support testicular cancer research at Memorial Sloan Kettering Cancer Center in New York, this cancer — which is related to the disease that claimed Brian's life — now has a 95 percent cure rate.

And because of Brian, Rush cancer patients also have hope for a better future. Since 1991, Rush has been one of the Piccolo fund's major beneficiaries: To date, the fund has given nearly $4 million to Rush to support research aimed at finding better treatments and, ultimately, a cure for breast cancer.

"I never expected Brian's story and life to affect so many lives over all these years."
– Joy Piccolo O'Connell

For more information about the Brian Piccolo Cancer Research Fund, visit www.brianpiccolo.org

Photography courtesy of Joy Piccolo O'Connell

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RUSH-PRESBYTERIAN-ST. LUKE'S
MEDICAL CENTER

1700 West Van Buren, Suite 250
Chicago, Illinois 60612

Rush Record

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An Inside Job

Using the vascular system, Rush physicians access the far reaches of the body to treat complex conditions.

In this issue:

RushRecord
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Editor:
Jill Waite

Managing Editor:
Judy Grossman

Writers:
Sean Carr
Patrick F. Kelly
Anne M. O'Reilly

Design and Art Direction:
Kimberly Sareny, Michael Pew

Cover photo by Andrew Campbell

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Diane McKeever
Vice President

Sara Stern
Associate Vice President
Marketing and Communications

Marie Mahoney
Director of Publications

Rush-Presbyterian-St. Luke's
Medical Center
1700 West Van Buren, Suite 250
Chicago, IL 60612

For additional information on any of the articles in this issue, please call (312) 942-7817 or send an e-mail to jill_c_waite@rush.edu.

Visit our Web site at www.rush.edu

RUSH
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On the cover: An insider's view of Rush's new magnetic-guided treatment system, which may enable physicians to probe the farthest reaches of the body – including the delicate vessels in the brain – with catheters.

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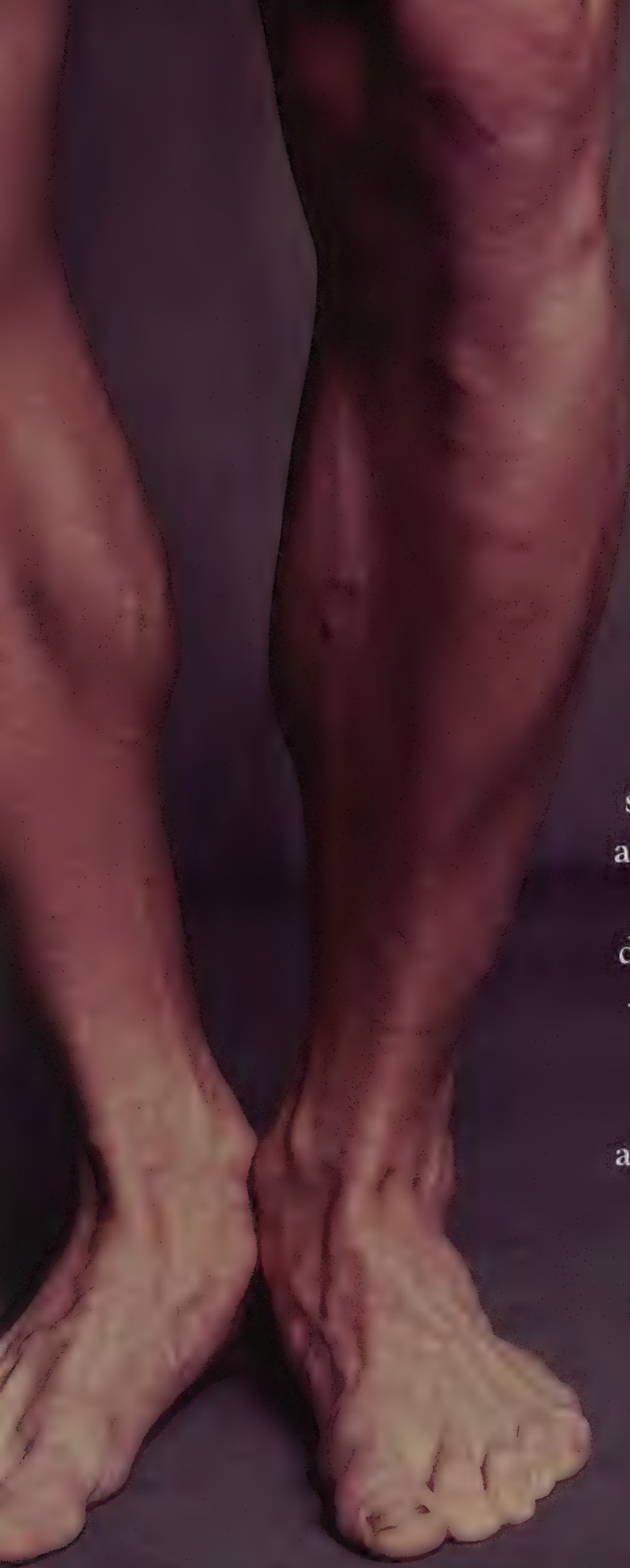


REBUILDING LIMBS AND LIVES

by Judy Grossman

Thirty years ago, Mike Hoadley wouldn't have had a choice.

Were it still 1970, the 32-year-old would have faced amputation after the 13-centimeter tumor on his left shin was revealed to be a rare, locally aggressive bone cancer called adamantinoma. Because this type of cancer doesn't respond well to chemotherapy — and because it readily recurs if it's not completely removed — in the past adamantinoma was treated by amputating the affected limb. Patients were usually cured, but at a steep cost. Fortunately for Hoadley, his cancer was discovered in 2001. And thanks to the huge strides made in limb salvage over the last three decades, he didn't have to trade his leg for his life.

Limb salvage — where an arm or leg badly damaged by cancer is repaired rather than removed — started to come into vogue for osteosarcoma, a bone cancer that occurs mainly in young people, in the late 1970s. Soon, the techniques were being applied to other types of cancer and to orthopedic traumas.

"When I was a resident here in 1975, limb salvage was in its infancy; amputation was still the treatment of choice," says orthopedic oncologist Steven Gitelis, MD, a 1975 graduate of Rush Medical College and director of the Rush Center for Limb Preservation.

But the field has evolved quickly. Today, amputations are done in only the most extreme cases, when the tumor is too massive or the cancer affects the surrounding skin, blood vessels and nerves. Gitelis and his colleagues can now save limbs roughly 90 percent of the time — and that number will climb even higher over the next few years as the technology is refined.

Gitelis attributes this amazing progress to three major advances in medical care over the last 30 years: the development of new chemotherapeutic agents to kill the cancer before a surgeon removes the tumor, which allows the surgeon to perform limb salvage much more safely and effectively; the advent of magnetic resonance imaging, or MRI, a sophisticated electronic imaging technique that enables surgeons to see the precise size and extent of the cancerous tumor; and vastly improved reconstructive techniques that include the use of a variety of metallic joint implants, self-lengthening implants for children, and human tissue transplanted from both donors and the patients themselves.

"The technology is now highly sophisticated," says Rush orthopedic trauma surgeon Walter Virkus, MD. "The implants we use are stronger, more versatile and have better fixation. We have better ways of repairing bones and replacing bone that's missing, and we can now successfully transplant tissues — including bone and muscle — from other parts of a person's body."

With this new technology, and with a dedicated team of cancer and orthopedic trauma specialists, Rush has built one of the most comprehensive limb preservation programs in the Midwest. "We have the ability to save limbs in even the most complex cases," Virkus says.

A rebuilding project

That's why amputation wasn't presented as an initial treatment option to Mike Hoadley. Because amputation is a surefire way to remove the cancer without risk of recurrence, he did explore the possibility on his own. But after extensive research — including talking to Gitelis and to people who had lost limbs to cancer or accidents — he decided salvage was his best option.

The tumor was removed and his leg was reconstructed at Rush in February 2002 in a grueling 14-hour operation that involved four surgeons and a combination of cutting-edge procedures — including two "free tissue transfers," microscopic surgical procedures in which surgeons transplanted portions of Hoadley's right fibula, the thin bone in the lower leg, and gracilis muscle from his left thigh.

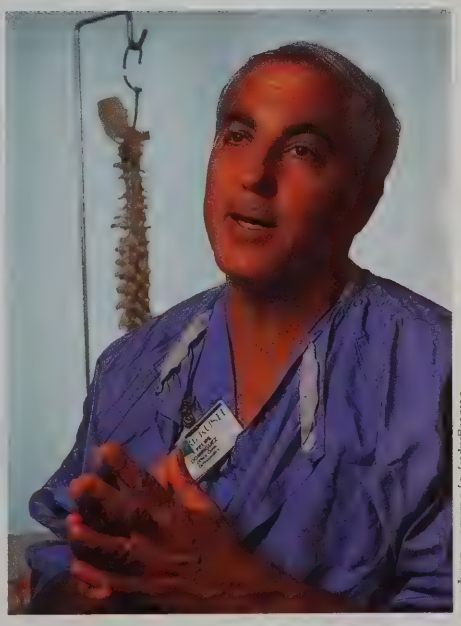
Free tissue transfer is used to fill the gaps created by removing damaged bone, muscle or skin and restore the function of the limb. What makes the technique so revolutionary, and so exacting, is that the transplanted tissue is kept alive during the procedure.

Once tissue is removed from the body — and cut off from its blood source — it dies, preventing it from growing and repairing itself. "The only way tissue can regain its normal function in its new home is if it's living," says orthopedic hand and microvascular surgeon Mark Cohen, MD, who operated on Hoadley along with Gitelis, Virkus and orthopedic hand and microvascular surgeon John Fernandez, MD. "This requires removing the bone and/or muscle with an artery and vein still attached. Once transferred, the blood vessels are sewn to local arteries and veins to provide nourishment and allow the tissue to stay alive."

The transplanted fibula gave life to Hoadley's left leg, but because the fibula is much thinner than the tibia it replaced, an allograft, or frozen donor bone, was also implanted to lend thickness and strength. The allograft was tightly secured to Hoadley's own bone using rods, screws and plates. "Once in place, the allograft provides a support structure to which the patient's own bone and soft tissues can grow and attach," Virkus says. The gracilis muscle was brought in to provide protective coverage, since the transplanted bones are close to the skin and therefore more vulnerable to injury.

Although free tissue transfer is not a brand new procedure — Cohen and Fernandez have

Limb salvage — where an arm or leg badly damaged by cancer is repaired rather than removed — started to come into vogue for osteosarcoma, a bone cancer that occurs mainly in young people, in the late 1970s. Soon, the techniques were being applied to other types of cancer and to orthopedic traumas.



Photography by Andrew Campbell

Steven Gitelis, MD, is the director of the Rush Center for Limb Preservation.

Photography by Andrew Campbell

Modular metallic components enable orthopedic surgeons to create implants of any size right in the operating room, eliminating the need for multiple reconstructive surgeries.

been doing it for about nine years — it's not widely done. "You need special training to remove the tissue safely from the donor site and repair the blood vessels," says Cohen. "But with the newer microvascular techniques and medicines, our success rate at Rush is 90 to 95 percent in terms of the transplanted tissue maintaining its viability and function."

One of the reasons free tissue transfer is possible is that there are expendable muscles and bones in the body; it's simply a question of knowing which ones. There are not, however, expendable joints, so if one of the weight-bearing joints — a knee or hip — is removed, the patient will have considerable problems functioning.

According to Gitelis, 20 years ago when a limb reconstruction involved the joint, surgeons used replacements made of donor bone and cartilage. But once cartilage freezes, it loses all of its cellular components and therefore wears down quickly after transplantation. In addition, after a few years the joint surface deteriorates. So today, when surgeons must replace damaged hips or knees, they use the more durable artificial implants.

Metallic implants are also used for limb preservation when patients have to undergo chemotherapy, because chemotherapy slows the healing of allografts and transplanted free tissues. Mike Hoadley was able to receive free tissue and allografts because adamantinoma does not require chemotherapy, and because the tumor didn't involve a joint.

A joint effort

Created in the 1970s, metallic implants have since been modified and improved. One of the latest innovations is "modular" cobalt chrome components — knee or hip joint, segment, and stem — that come in different sizes. These parts can be used by themselves or pieced together to form a whole implant of any length, like high-tech Tinkertoys. In the past, surgeons who removed a cancerous tumor from a bone had to order a custom-made implant that took about six weeks to fabricate and didn't always fit properly. Today, surgeons can assemble modular implants in the operating room, which makes the procedure easier on both the surgeon and the patient.

"Before, I would have had to cut the cancer out, do a temporary reconstruction, wait months for the part to be made, then bring the patient back to surgery to do the real reconstruction," Gitelis says. "Now I can do the whole operation at once, which means less risk of complications and a faster recovery."

Room to grow

Just as modular implants are improving limb reconstruction in older teens and adults, the recent advent of a noninvasive self-lengthening technology for implants will enable surgeons to better treat a variety of bone cancers in children between the ages of five and 13. Gitelis was the first surgeon in Chicago to implant the self-lengthening prosthetic in a patient, and Rush is one of only a handful of sites in the country where it's available.

Traditionally, young children with osteosarcoma in the lower leg faced almost certain amputation. The reason is that these tumors tend to develop at the end of the bone near a joint; therefore, removing the tumor means also removing the growth plate — the area at the tip of each bone that manufactures bone cells to make the bone elongate as a child grows. "Without its growth plate, the limb can't grow and would be so short it would be useless. In that case, it's better to just amputate and fit the child with a prosthetic limb," Gitelis says.

In addition, regular implants — even modular implants — can't be lengthened once they're implanted. So the child would need additional, painful surgeries over the years, where the surgeon cuts into the leg and lengthens the implant manually.

The self-lengthening implants are based on the same concept as a toilet paper spindle: a spring mechanism between two solid tubular components. When the implant is placed into

Room to grow: Implants for growing children

Self-lengthening implants are equipped with a spring (see inset) mechanism that enables them to lengthen and keep pace with a child's growth. The child simply goes to the x-ray department and pushes a button to expand the spring. Rush was the first hospital in Chicago to offer this technology.

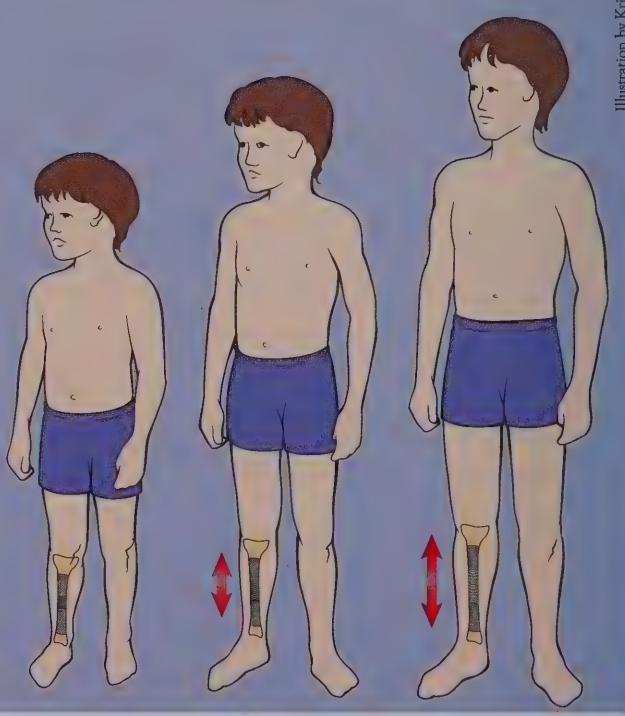


Illustration by Kristen Wienandt

the leg, the spring locks securely into place. Then, when it's time to expand the implant, the child goes to the X-ray department — rather than the operating room — and an electromagnetic field is applied to the leg to unlock the spring. The child then lengthens his or her own implant by simply pressing a button. "They lengthen it as much as they can tolerate," Gitelis says. "And we can bring them back as many times as necessary to keep lengthening the leg as the child grows, because it's not a surgical procedure."

The implant enables the leg to grow gradually and naturally, so the function of the leg remains close to normal throughout the child's development. The child can bend and straighten the knee and can participate in noncontact activities such as running, biking, golfing, swimming, dancing and even skiing. High-impact and contact sports aren't allowed — not because the implants are fragile, but because they have to withstand many decades of use.

"When you put an implant in a young child and you cure their cancer, as we're doing more than 70 percent of the time, that implant has to last a lifetime," Gitelis says. "The better you take care of it, the better it will perform."

New lease on life

One of the remaining challenges in limb salvage in general is to make implants that are stronger, last longer and affix better to human bone. But even as researchers at Rush and other institutions work on solving those issues, the shift away from amputation and toward limb salvage is enabling a greater number of children and adults to stand on their own two feet.

That's certainly the case for Mike Hoadley. The commercial real estate broker is cancer free and, according to his doctors, likely to remain that way. The 10-year survival rate for adamantinoma patients treated with limb salvage is nearly 90 percent with no recurrence of cancer.

Hoadley will probably never be able to participate in hard-core sports, such as basketball, football or running, but there's still so much he can experience — things he, like most people, used to take for granted. He can take long walks. He can go sailing, which is his passion, and swim and ride his bike. And he can stand on the beach, at the water's edge, and feel both of his feet sinking into the cool, wet sand. ■

Steven Gitelis, MD, was the first surgeon in Chicago to implant the self-lengthening prosthetic in a patient, and Rush is one of only a handful of sites in the country where it's available.

Photography by Andrew Campbell

With his cancer gone and his leg rebuilt, Mike Hoadley hopes to spend a lot more time doing what he loves most: sailing.

Is mammography the best defense?

by Sean Carr and Judy Grossman

Photography by Kevin Horan

In the past year, the media has aired conflicting reports about the benefits of routine screening mammography, creating confusion among women about whether to continue or start scheduling regular mammograms. The *RushRecord* recently sat down with Peter M. Jokich, MD, to discuss his views about the ongoing debate.

Ask the Expert

Peter M. Jokich, MD, associate professor of radiology and director of the Rush Breast Imaging Center, offers his opinion on the value of mammography. Dr. Jokich has more than 20 years' experience as a radiologist dedicated to mammography and breast imaging.

Photography by Kevin Horan

"There have been varied opinions over the years about whether mammography is the most effective way to detect breast cancer. The debate was particularly vigorous this year, when the media took interest in this topic. But regardless of which stance the experts have taken on the issue, they all agree that the earlier breast cancer is detected, the more successfully it can be treated. And I have found that the best way to detect breast cancer early, before it grows and spreads, is with routine screening mammograms.

"I'm certainly not alone in this belief. An article in the August issue of the journal *Cancer* reported that regular mammography screening in Sweden decreased breast cancer deaths by 40 to 45 percent. The largest and most exacting review of its kind — it covered seven Swedish counties and approximately 33 percent of the nation's population — it was just the right evidence to counter the negative reports that got so much publicity earlier in the year.

"Some of America's leading health organizations — such as the U.S. Department of Health and Human Services, the National Cancer Institute and the American Cancer Society — agree that mammography is the best defense against breast cancer. They all recommend regular screening mammograms for women over the age of 40. Approximately 250,000 American women will be diagnosed with breast cancer this year."

"Why is mammography a better option than self-exam or a physical exam performed in a doctor's office? Because mammograms can often detect small abnormalities in the breast, sometimes as small as the head of a pin — far too tiny to be felt as a lump. When the tumor is that small, the cancer is less likely to have spread, and it can often be treated less invasively and with less trauma than larger tumors. This usually means better outcomes for patients. Also, a recently published study from China, involving more than 250,000 women followed for more than a decade, showed that formalized breast self-examination did not lead to a decrease in breast cancer deaths.

"And while getting regular mammograms is important, research shows that where a woman gets her mammogram also makes a big difference. Expertise does matter. *The New York Times* reported this summer that most of the 20,000 doctors in the United States reading breast X-rays are generalists with limited training and practice in mammography — even if they are board certified radiologists.

"A mammogram is one of the most difficult X-rays to read; breast tumors can appear in a number of different forms and are often hard to detect among the normal light and dark areas of the X-ray. That's why it's important to go to a center that has dedicated breast imagers, specialists whose practices are devoted solely to the detection and evaluation of breast disease.

"And there are benefits to having a mammogram done at an academic medical center, such as Rush, where the imaging team is backed by a comprehensive breast cancer program. When a patient is diagnosed with breast cancer, she has access to physicians who are developing and testing the latest life-saving therapies — such as drugs that starve tumors and laser procedures that may eliminate the need for lumpectomies.

"Health care decisions are made by individuals — a woman working in concert with her physicians. I tell all of my patients over the age of 40 that if they aren't already having yearly screening mammograms, they should start now. For the early detection of breast cancer, what other options are there? I tell them, as I tell my own wife, that their health care is far too important to put off another day." ■

To schedule a mammogram at Rush, call (312) 942-2027. Within days of making an appointment you will be seen by members of the Rush breast imaging team.

"It's important to go to a center that has dedicated breast imagers, specialists whose practices are devoted solely to the detection and evaluation of breast disease."

THE X

Photography by Andrew Campbell

Billy Borgerd was diagnosed with fragile X syndrome when he was 10 years old.

Photography by Andrew Campbell



FACTOR

By Anne M. O'Reilly

When Gail and Gary Borgerd's 16-year-old son Billy was small, they called him their "little enigma." They knew something was wrong with him; they just didn't know what it was.

At the age of one, he couldn't sit or get up. They visited three neurologists and none of them could diagnose what was wrong. To figure out how to help him, Gail voraciously read everything she could find about his symptoms. Through her research, she had heard about something called fragile X syndrome, the most common inherited cause of mental retardation. At the age of one, Billy was tested for the disease with what was then the only test available — a somewhat unreliable chromosome test. Billy tested negative.

So, Gail enrolled him in physical, occupational and speech therapy to help him progress.

"We had to figure out how to communicate with him," Gail says. While doctors couldn't find a specific reason for his problems, they did know that Billy had an anxiety disorder as well as cognitive and sensory integration problems, and he wasn't meeting typical milestones like other kids.

To further encourage Billy to improve, the Borgerds made their home into a therapy center. "We never just played with him, it was always directed play, with an educational goal of some kind," Gail says.

While Billy seemed to be progressing — walking by three years of age and talking by the time he was five years old, something still wasn't right. When Billy was 10 years old, a much more reliable, DNA test for fragile X syndrome became available and Billy was tested again. This time, the test was positive. Billy had fragile X syndrome, and his parents finally had an explanation for his physical and cognitive problems.

What is fragile X syndrome?

Named for the broken appearance of a defect on the X chromosome, fragile X syndrome is an inherited disorder that affects approximately one in 4,000 boys. These boys often face a host of problems, including cognitive difficulties, hyperactivity, speech and vision impairment, poor muscle tone and heart abnormalities, and may only reach a cognitive age of five or six years old. They also tend to share certain physical characteristics — a long face, large ears, flat feet and hyperextensible joints.

While girls develop fragile X in the same numbers as boys — about one in 4,000 — their problems tend not to be as severe (see sidebar on p. 11). With two X chromosomes, girls are less affected, because usually one contains the normally functioning version of the gene.

Elizabeth Berry-Kravis, MD, PhD, the Rush pediatric neurologist who ultimately diagnosed Billy, is director of the Rush Fragile X Clinic, the only program of its kind in the Midwest. The multidisciplinary clinic treats the variety of medical, behavioral and educational problems that fragile X patients face and offers the expertise of a team of health and educational specialists in pediatric neurology, genetics, optometry, child psychology, special education, speech/language therapy, occupational therapy and dentistry.

Berry-Kravis, who has worked with about 200 families in the Midwest, including Billy and his family, was recently a lead presenter at the eighth International Fragile X Conference. Sponsored by the National Fragile X Foundation, the meeting brings hundreds of patients and family members together with leading scientists and clinicians.

How does one small defect on the X chromosome change so much? The defect on the X

chromosome shuts down a gene that makes an essential protein for cognitive function. The extent of the defect — whether that gene is partially functioning or completely shut off — can mean the difference between a learning disability and mental retardation, Berry-Kravis says.

For boys with fragile X, simple things like a change in a schedule or visiting a new place can be a challenge.

"Sounds and big areas scare them," Gail Borgerd says. "For them, being in a new situation is like putting you or me in a room with five marching bands. They freak out — then they calm down. What we had to do with Billy was desensitize him to new situations. The first time he went to the circus, it didn't go well. But each time we went back, it got better."

For a child with fragile X, "freaking out" often involves crying, hand flapping, or chewing on skin, clothing or objects. Boys with fragile X syndrome often have a hard time keeping eye contact with others, and can be sensitive to sound or light.

Communicating can sometimes be difficult for fragile X kids as well. "Asking an open-ended question is hard on him," Gail says. "You know how it feels when you can't think of something and it's on the tip of your tongue? That's how it is for kids with fragile X all the time. It's better to ask specific questions, like, 'Do you want chicken or steak for dinner?'"

Not a simple diagnosis

While it was something of a relief to have Billy's problem identified, it wasn't easy for Gail or Gary to accept. "When a couple is told their child has a disability, it's like hearing that the child they had died," Gail says. "Here's the child you have now. Parents go through denial and anger. That never goes away, but it does get better."

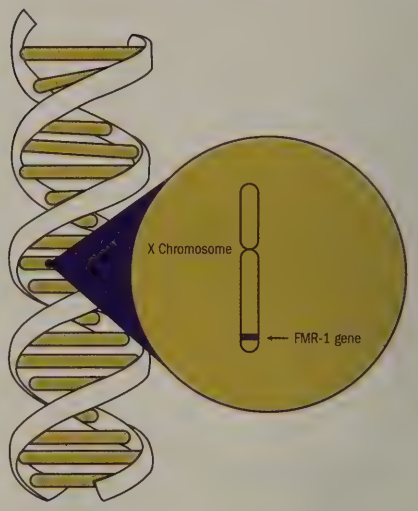
Because fragile X syndrome is a genetic disorder — about one in 250 women and one in 700 men are a silent carrier of the disease, with the potential to pass it on to their children or to future generations — Berry-Kravis treats much more than simply her patients' symptoms.

By tracing a family tree and testing family members' DNA, Berry-Kravis can pinpoint carriers of fragile X, and identify who is likely to pass it on to their children. "Once you have it in one person in the family, there may be numerous other people at risk of having children with this disorder," she says. "It's so important that families understand how distant in the family this may appear."

Here's a quick genetics lesson: Because the disease is X-linked and men have only one X chromosome, carrier men pass the defect to all of their daughters but none of their sons. Each child of a carrier woman has a 50 percent chance of inheriting the gene.

If someone is identified as a carrier of the gene, they still have options for having children who don't have fragile X. "The simple goal is to try not to pass on the fragile X gene," Berry-Kravis says. "You can do prenatal testing or egg donation from another family member or friend."

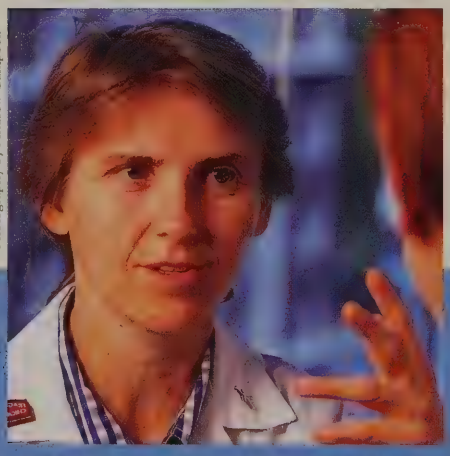
Often Berry-Kravis acts as a family counselor. "When they get the news, we get very different reactions from people," Berry-Kravis says. "Some families handle it very well — and understand the implications. Some hide and don't tell their relatives and don't want anyone to know. Others have relatives who won't even listen to them and just have this 'it won't happen to me' attitude and refuse to get tested."



Fragile X refers to a defect on an X chromosome. Under a microscope, the "site" looks like a link of the chromosome is breaking off from the whole.

In 1991, scientists discovered the gene, FMR-1. In those who have fragile X syndrome, a mutation in FMR-1 renders the gene incapable of manufacturing an important protein called FMRP. This protein affects brain cells. Without it, mental retardation often occurs.

Photography by Andrew Campbell



Elizabeth Berry-Kravis, MD, director of the Rush Fragile X Clinic, was a lead presenter at the eighth International Fragile X Conference. Sponsored by the National Fragile X Foundation, the meeting brought hundreds of parents and family members together with leading scientists and clinicians.

Photography by Andrew Campbell

Gail and Gary Borgerd, seen here with Billy, formulate questions about their son's future.

The outlook

In addition to patient care, Berry-Kravis also does fragile X research to help improve the outlook for her patients' futures. Currently, drugs given to people with fragile X treat only symptoms, such as attention deficit problems or anxiety. In conjunction with a doctor from the University of California, Davis, Berry-Kravis is testing a drug that has the potential to improve cognitive function. Rush and the University of California, Davis, are the only two sites in the nation testing the drug.

While research efforts continue, day-to-day life has it challenges for Billy and others with fragile X syndrome. "I wouldn't wish being a parent of a child with fragile X on anybody," Gail says. "You're a parent of a little kid for a lot longer. He needs help with simple things like combing his hair or clipping his toenails. He's not going to do what I did — I had my own boat at the age of 16. Realizing that is still hard."

But, like other families, the Borgerds find ways to cope. They encourage Billy's many interests, including taking photographs of family and friends with his instant camera that's shaped like the Tasmanian Devil, watching videos, cooking, playing golf and bowling.

And to keep up with how he's doing in his special curriculum, Gail sends a notebook with Billy every day for his teacher to write notes about what they covered. Then Gail can ask him specific questions.

Photography by Andrew Campbell

Billy's interest encompasses his many interests, one of which is photography.

On a recent day at the Borgerds, Billy took a walk with his mother and a friend and showed off his excellent memory — a common trait for those with fragile X. He waved and said hello to every neighbor who walked or drove by — and knew everyone's names. They all greeted him just as warmly. "Everybody loves him," Gail says.

Despite his challenges, Gail believes Billy has a bright future. She hopes that one day he'll hold a job helping others.

Gail says that people often ask her, "'Don't you wish he was normal?' I tell them, 'Would I change his personality, absolutely not. Do I wish his life were easier, yes.'" ■

Girls With Fragile X

Girls who have fragile X syndrome are less affected that boys, but they have their own unique challenges. With two X chromosomes, usually only one X chromosome carries the defect and the other contains the normally functioning version of the gene. This means girls' symptoms tend not to be as severe, but it also means they can remain undiagnosed for a lifetime.

"There are many girls or women out there who have fragile X syndrome and don't know they have it," says Elizabeth Berry-Kravis, MD, PhD, Rush pediatric neurologist and director of the Rush Fragile X Clinic. With an average IQ of 80, they often have learning disabilities, anxiety and socialization problems.

"These are the people who slip through the cracks in school," she says. "They never really do well because they have some cognitive deficits and socialization problems, but sometimes they don't do badly enough to end up with special education support."

And things don't improve as they get older. After floundering through school, they continue to have trouble with organizational skills, jobs, socialization skills and anxiety, Berry-Kravis says. "They can have trouble drifting from one living situation to another — not paying bills, losing their jobs," she says. "Their families may have just labeled them flaky and irresponsible. Until they have a son with fragile X syndrome, they don't even know that's what they've been battling their entire life."

Girls who get the correct diagnosis of fragile X at a young age are at a great advantage because they can get the support they need as they're growing up — through medications and school services. Before Karen Dorfmeyer's daughter Kristin was diagnosed when she was six years old, doctors had labeled her a variety of things — from autistic to psychotic.

"It was a relief, I could put a name to it, I could research it," Dorfmeyer says. "The unfortunate thing is that you realize they're not going to grow out of it."

Dorfmeyer eventually found Berry-Kravis at Rush, who has helped Kristin greatly. "She really spends a lot of time — she knows her patients," Dorfmeyer says. "She helped fine-tune Kristin's medications."

Kristin, now 12, is doing well in school and is reading at a sixth-grade level. But she has her own special challenges. Like many kids with fragile X syndrome, she doesn't understand open-ended questions, abstract ideas or relationships between numbers.

"People think she's not paying attention, or they think Kristin's being rude because she won't look at you, but it's simply her gaze aversion — it's a common trait," her mother says. "She doesn't mind being around people, but she doesn't want to relate one-on-one to people. She prefers to read or work on the computer."

And, unlike many girls in sixth grade, she has no friends and she doesn't want any, Dorfmeyer says. "It's really hard for me. It doesn't bother her at all. It bothers me," she says. "I have to accept that that's the way Kristin is, and she's happy."

Diseases such as syphilis, gonorrhea and chlamydia are rampant among adolescents and young adults.

STRAIGHT TAL

Doctors don't lead nine-to-five lives. That's something medical students learn early on. During the first two years of medical school, heavy course loads make long stints in the library a daily — and nightly — necessity. Once they start seeing patients in their third year, students forget that they ever followed regular schedules. Which makes it all the more amazing that almost 90 percent of Rush Medical College students not only find the time to volunteer — they seek it out.

Youth LINK — Youth Listening and Imparting Needed Knowledge — is one of many volunteer efforts coordinated by the Rush Community Service Initiatives Program (RCSIP) (see box). Youth LINK is a volunteer program run and staffed by some 40 Rush medical students. Their goal: to give the teens and young adults who come through Cook County Hospital's pediatric emergency room and non-trauma ER the knowledge and, equally important, the real-world skills they need to protect themselves from unwanted pregnancies and sexually transmitted diseases. Cook County Hospital is not just Rush's good neighbor, it's Rush's collaborator in several clinical and research efforts. It is also one of the most popular medical sites for Rush students to do their core rotations in areas such as family medicine and obstetrics/gynecology — and it's a place where Rush students volunteer.

Diseases such as syphilis, gonorrhea and chlamydia are rampant among adolescents and young adults. And according to the Centers for Disease Control and Prevention, a quarter of the 40,000 new cases of HIV reported each year are in people under age 22. Minorities, in turn, account for more than half of those cases.

A few years back, several Rush medical students decided that one way to have an impact on these rates was to be where many young minorities go not only to have STDs treated but, in many cases, for all of their health care: the ER.

"In an emergency room, the doctors and nurses give priority to traumas — and rightly so. But that means they rarely have the time to talk to their young patients about sexual health," says Veena Korah, a Rush Medical College fourth-year student and a founding member of Youth LINK.

"And that means many of these kids will be back in the ER with another STD within six months," adds Amy Valukas, director of RCSIP.

So for the last two years, every Monday evening in a private room in the Cook Country Hospital ER, Youth LINK volunteers try to talk to everyone between the ages of 14 and 24 who comes through the doors — getting parental consent, of course, before speaking to the younger kids. And it doesn't matter what they're in the ER for, even if it's just a nose bleed, headache or sprained ankle. The thought is that all young people are at risk and, being young, that they'll find it easier to open up about sex just talking with a young medical student in a shirt and jeans than in a more formal interview with an older doctor in a lab coat.

Each Youth LINK volunteer has his or her own way of opening up these conversations. "I start off asking if they have any specific questions," Korah says. "If they don't, I just go right into my spiel — I'll talk about the different kinds of STDs, how they can be prevented and treated, and so on." To get a sense of what his patients know, Rush third-year medical student Bill Park likes to lead off by asking kids to define sex or to describe how STDs are spread. He's been impressed with the responses he's gotten.

"These kids know more than I thought they would," Park says.

But the Youth LINK volunteers have also learned that while many of the young people they talk to are well informed, they often aren't making the connection between their own risky behaviors and the possible consequences. That's when the pathology photos come out, illustrating some of those consequences in graphic detail.

"Those pictures really get their attention," Park says. "The response is usually something like, 'Oh my God, what is that?' "

Shocking as those pictures are, however, the Youth LINK volunteers don't expect them to frighten everyone into abstinence. That's why they also offer help with both the mechanics and the logistics of protection — from how to put a condom on to how to plan ahead. Then there are the trickier situations, such as helping young women negotiate with men who balk at wearing a condom. Third-year Rush medical student Maggie Pollack role-plays with them, taking the woman's part and showing her how to counter every possible argument that her partner might have.

And while much of the talk and instruction in that room in the Cook County Hospital ER revolves around preventing STDS, Youth LINK's ultimate goal is to get their target audience in regular contact with a primary care physician instead of relying on sporadic visits to the ER for all of their health care. "It really helps when you have your own doctor," Pollack says. "Someone who knows you and knows your history."

Youth LINK is still working toward that goal, but the volunteers feel they've already made a successful connection with their clientele at Cook County.

"I've never had anyone say no when I've asked if I could talk to them about their sexual health," Korah says.

Park says some of the teens he's talked to are even thinking about coming back with their partners. His response: "We're here every Monday."

by Sean Carr

Photography by Steve Gadomski

Medical students like Maria Bachkova use the art of conversation with teens and young adults to promote prevention.

Where Rush Medical Students Volunteer

The Community Health Clinic – Provides free preventive and primary health care to uninsured Chicagoans.

Franciscan Homeless Shelter Clinic – The largest overnight shelter in Chicago.

Pilsen Homeless Health Services – A clinic dedicated to providing free health services to the Pilsen community.

Buddies Program – Matches Rush medical students with chronically ill children.

Health Educators – Medical students use innovative ways to teach heath to junior high kids.

Henry Horner Tutoring Program – A tutoring program for kids from first to ninth grade.

Marah's Place – Housing for women able to work toward life off the streets.

An Inside Job

by Judy Grossman

In February 2002 — just seven months before her wedding — 39-year-old Athena Wright learned she had not one, but two cerebral aneurysms in the artery behind her left eye. And one of the aneurysms was large enough, roughly the size of a grape, to require prompt treatment to prevent it from rupturing.

Photography by Andrew Campbell

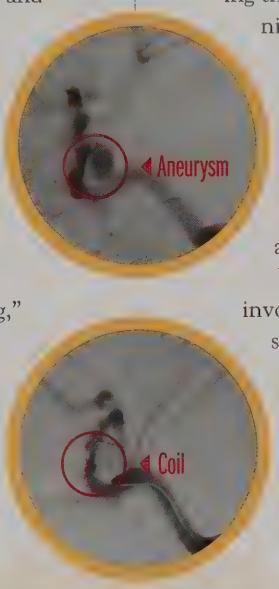
Photography by Andrew Campbell

This magnetic-guided treatment system will help doctors at Rush access the vessels of the brain.

Aneurysms are balloon-like bulges that form in the wall of an artery due to the pressure of blood flowing through a weakened area of the artery. Often symptomless, aneurysms can form anywhere in the body, although the most common sites are the aorta, the main artery from the heart, and the arteries that supply blood to the brain. In one out of two cases, a rupture results in instant death.

At least two of Wright's family members had died when undiscovered aneurysms burst. Fortunately, hers was identified, enabling preemptive treatment. Demetrius Lopes, MD, a neurosurgeon at Rush, laid out her options: a standard surgical procedure called clipping, or a newer, less invasive procedure called coiling, in which a catheter is threaded up into the brain through the patient's blood vessels and a small wire coil is placed inside the aneurysm to seal it off and prevent blood from flowing into it.

Wright, who works as a supervisor at the Evergreen Park post office, didn't have a tough time choosing which procedure to undergo. "Coiling was a lot less invasive, the recovery time was a lot quicker, I didn't have to shave my head and there was no scarring," she says. "I still had to take it easy for awhile after the coil was put in, because it's a major procedure, but I was up and around and back to work a lot more quickly than I would have been after the clipping."



Athena Wright's aneurysm before (top) and after the coiling procedure.

To boldly go ...

Five years ago, clipping — which requires the surgeon to open the skull and make a large incision to access the aneurysm — would have been Wright's only option. While this is an effective way to seal off aneurysms, it's also a highly invasive procedure that carries an eight to 10 percent risk of serious complication, such as stroke (versus three percent for coiling). "And to get to the aneurysm, you have to push on the brain tissue a bit," Lopes says. "Just doing that may slightly affect the patient's memory or cognitive skills, especially if the patient is over 65."

Coiling is one of the many ways physicians are now using the body's vascular system — its intricate, interconnecting network of blood vessels — to treat complex diseases and problems such as aneurysms less invasively. It's like having a tiny surgeon inside the body doing repairs from within. "The vascular system provides us with a nice, natural pathway," Lopes says. "If we can access problems using the path that's already there, rather than having to create a new one with a large incision, that's often better for the patient."

Although coiling is relatively new, the strategy behind it is not. For decades, cardiologists and interventional radiologists have used the vascular system to pinpoint and treat problems, such as blockages in the arteries that feed the heart. Today, less invasive approaches are being embraced by other specialists, including neurologists, to access the far reaches of the body. And advances in technology, such as a revolutionary magnetic-guidance system, promise to provide even more therapeutic options down the road.

Doctors travel through the body by threading catheters into arteries via small incisions and guiding them with very precise imaging techniques. While not right for every patient and every condition, catheter-based procedures can be performed with greater ease and less risk of complications than surgery, since they don't require doctors to make large cuts, saw through bones or move organs or tissue aside.

Using the blood vessels to treat patients involves collaboration between disparate specialists who share a common interest in the vascular system. For example, because the carotid artery of the neck feeds the brain and there is a slight risk of neurological complications, such as stroke, a neurosurgeon will work with an interventional cardiologist and an interventional neuroradiologist to treat blockages in the carotid arteries. Similarly, a vascular surgeon works with either a cardiologist or interventional radiologist to treat abdominal aortic aneurysms, since two three-inch incisions are required to accommodate the large catheters and stents needed for the procedure.

"It's a logical partnership, because we come from different backgrounds and therefore have different areas of expertise," says Jeffrey Snell, MD, director of interventional cardiology at Rush. "That blend of skills and experience means better outcomes for our patients."

In addition to teaming up for procedures, the specialists also meet periodically to share the latest technology and techniques from their respective fields. Each brings a unique perspective to the table. So endovascular neurosurgeons such as Lopes, who are relatively new to the game, can benefit from the expertise of specialists who have been performing endovascular procedures for decades.

Angioplasty revolution

Radiologists first began using angiography, a catheter-based diagnostic procedure, in the 1950s to visualize and pinpoint problems in the blood vessels. And in the late 1970s, balloon angioplasty was developed to treat blockages in the arteries of the heart. By inserting a catheter through an artery in the groin or arm and carefully guiding it into the blocked artery, doctors were able to open or widen the blood vessels. This approach revolutionized the role of the cardiologist in treating coronary artery disease and launched the field of interventional cardiology.

As the safety and efficacy of angioplasty grew, and as the technology and imaging capabilities became more sophisticated, cardiologists and radiologists started using angioplasty in other parts of the body. They can now use catheters instead of scalpels to clear out blockages in the legs, carotid artery and renal arteries; to biopsy lung lesions and pancreatic tumors; to apply heat, cold or chemotherapeutic agents to kill malignant liver tumors; to deliver targeted gene therapy to grow new blood vessels in the heart; to treat varicose veins without having to strip the veins out; and to deliver thrombolytic drugs to dissolve blood clots.

Photography by Andrew Campbell

Interventional cardiologist Jeffrey Snell, MD (left), and endovascular neurosurgeon Demetrius Lopes, MD. Lopes is currently the only neurosurgeon in Chicago who uses clipping or coiling to treat aneurysms.

"Our first goal, as physicians, is to find ways to save lives, and then our second goal is to make those life-saving procedures better," says Paramjit S. "Romi" Chopra, MD, acting chairman of diagnostic radiology and nuclear medicine at Rush and a specialist in interventional radiology. "Catheters were first used in the coronary arteries, but we can now go head to toe. Not only can we image every part of the body, we can now treat every part of the body."

For instance, 62-year-old Chicagoan Gerald O'Neill was treated at Rush for blockages in both his carotid artery — where he had a 90 percent blockage that eventually would have caused a stroke — and the arteries of his legs. He first underwent a procedure called carotid stenting, in which a catheter was threaded up into the carotid artery, a drilling device was used to tunnel through the blockage, and a tiny wire mesh tube called a stent was placed into the artery to prop it open and prevent renarrowing. Snell then placed stents into the arteries of O'Neill's legs after opening the arteries with angioplasty.

Unlike the blockages in his neck, the blockages in O'Neill's legs were not life-threatening. But before treatment, he couldn't walk a block or climb a flight of stairs without experiencing pain, fatigue and dizziness. Today, he is able to join his wife, Mari Jo, for morning mall walks that will keep his heart healthy and help him avoid further problems.

Head-to-toe interventions

Although treating problems from within the vascular system helps patients like O'Neill avoid major surgery, these procedures have their limitations. One constraint is the size of the blood vessels. Those in the brain, for instance, are extremely small. Until recently, even the finest catheters were too large and stiff to maneuver through these tiny pathways, which at 2 to 3 mm in circumference are only slightly larger than a coffee stirrer. By comparison, the largest blood vessel in the body, the aorta, has a circumference of 30 to 40 millimeters and is easy to probe. For that reason, abdominal aortic aneurysms have been successfully treated using catheters and mesh-covered stent grafts since 1998, and hundreds of these procedures have been performed at Rush.

"The problem with treating the brain is that not only must you be able to thread a catheter through the artery, you must be able to do the repair work through the catheter once you reach the blockage or defect — and this required the development of microscopic devices and instrumentation that weren't available a decade ago," says Lopes. But that development has accelerated over the last five to seven years, enabling Lopes and his colleagues to begin making inroads into the brain.

Although the instrumentation and techniques are still in their infancy, catheter-based treatments for brain aneurysms, blocked cerebral arteries and other neurological problems hold a great deal of promise for the future. In addition to aneurysm coiling, Lopes is involved in cutting-edge studies of the first generation of stents for cerebrovascular blockages, and he is experimenting with a device that gently suctions out clots from arteries. "There are a lot of challenges in treating blood vessels," Chopra says. "But more and more devices and drugs are being created to answer some of these challenges — and always with the goal of making the treatments easier, faster and safer."

On the horizon

One of the most promising — and exciting — developments is a magnetic-guided treatment system that was recently acquired by Rush (see cover photo and photo on page 15). Rush is one of only three centers worldwide that has the system, and this fall, neurosurgeons at Rush will begin using it in an investigational study to access the vessels of the brain. Ultimately, it will also be used by cardiologists to treat complex coronary arteries.

Created by Stereotaxis, the magnetic guidance system may eventually enable doctors to thread catheters through blood vessels that defy treatment with conventional angioplasty tools, such as those that are located in hard-to-reach places, twisted or looped like a phone cord, or completely blocked.

The system uses large magnets, placed around the patient's head or chest, to help navigate and orient catheters within the blood vessels. The magnets acts like a steering wheel; remotely controlled by the physician using point and click devices, they deflect the tip of a specially made catheter that is mechanically pushed or pulled through the blood vessels. Increasing or decreasing the current to any of the magnets alters the contours of the field and with it the direction in which the catheter moves. One benefit of these new catheters is that they are flexible enough to make a turn at an angle sharper than 90 degrees.

Initially, neurosurgeons will use the new system in a clinical trial to access vessels in the brain (e.g., clogged vessels in the brain of newly diagnosed stroke patients), and they are planning clinical

research protocols to eventually treat brain aneurysms and tumors. Interventional cardiologists anticipate that, down the road, the system will dramatically improve their ability to open up even the most difficult-to-treat coronary vessels.

"Currently, about 30 percent of our patients with coronary artery disease can be treated only with drugs or bypass surgery because of the severity or location of the blockages," says Gary Schaer, MD, director of the cardiac catheterization lab at Rush. "The magnetic guidance system will prove to be one of the major advances in our ability to treat coronary artery diseases without invasive surgery."

Smart medicine

While magnetic guidance and other new technology will enable more problems to be treated from the inside, surgery is still a better option in some cases. The challenge lies in knowing which procedure to use in which instance. For example, since coiling is a relatively new procedure, the long-term results are not yet known; the coil may have to be supplemented over time, whereas once an aneurysm is clipped, it usually doesn't have to be treated again. So for very young patients who expect to live 60 or 70 more years and would potentially have to come back numerous times during their lives to have new coils put in, a one-time clipping might be a better way to go.

"The beauty of having both surgical and endovascular techniques available is that you have options in many cases," Lopes says. "It's just a question of using the tools wisely, weighing the pros and cons and making decisions that are best for each patient. That's smart medicine, and that's what's going to create a dramatic improvement in outcomes."

Athena Wright is certainly pleased with her outcome. The coil is holding, she feels great, and her aneurysm is no longer in danger of rupturing. With that huge weight off her mind, Wright was able to focus on planning her dream wedding. After a four-year courtship, she and Lawrence Whitman said their vows aboard a Caribbean cruise ship in September. ■

With vastly improved imaging capabilities to guide them, interventional radiologists can now treat problems head to toe. Here, Paramjit S. "Romi" Chopra, MD, acting chairman of diagnostic radiology and nuclear medicine at Rush, studies digital X-ray images in the reading room.

Clearing the Hurdles

Although catheter-based procedures have provided new options for patients, work is still under way to perfect these approaches. At Rush, cardiologists are tackling two of the remaining limitations of angioplasty: debris and renarrowing.

During angioplasty, tiny bits of plaque sometimes break free and travel to vital organs through the bloodstream, posing a serious threat. To prevent this from happening when dealing with arteries near the heart — and causing a heart attack — a few years ago researchers developed a protective device called Cardioshield. Along those lines, doctors are now focusing on keeping debris from traveling up to the brain during carotid stenting.

Rush is the only Midwest site for the SECURITY trial — led by Jeffrey Snell, MD, and co-principal investigator Demetrius Lopes, MD — for the Neuroshield. Modeled after the Cardioshield, the Neuroshield is a tiny filter, resembling an umbrella, that is placed beyond the tip of the catheter to catch any bits of plaque that break off from drilling through the blockage. Once the angioplasty is done and the stent is in place, the Neuroshield is drawn back into the catheter with the debris folded safely inside.

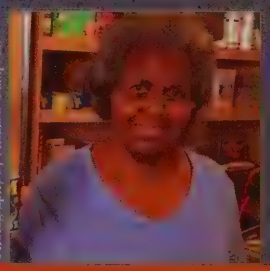
Another drawback to angioplasty that is being addressed is restenosis, or renarrowing, which happens when excessive scar tissue forms inside the artery due to damage caused by the balloon inflating. In 1998, Rush led groundbreaking clinical trials for low-dose beta radiation, delivered through the catheter during angioplasty, to prevent that scar tissue from forming.

Using beta radiation and stents, cardiologists shrunk the restenosis rate in coronary arteries from 50 percent to less than 20 percent in just a few years. Given that success, Snell is now using the radiation-stent combination to keep the arteries of the legs from reblocking after angioplasty, as he did for patient Gerald O'Neill. It should make a significant difference, particularly in the superficial femoral artery, the main artery of the thigh, which has an extremely high rate of restenosis. Rush is the first center in the country conducting clinical trials for beta radiation to prevent restenosis in this difficult-to-treat artery, and the only center in the Midwest offering cryotherapy — which uses cold, rather than radiation, to prevent cells from regrowing — in the superficial femoral and popliteal arteries.

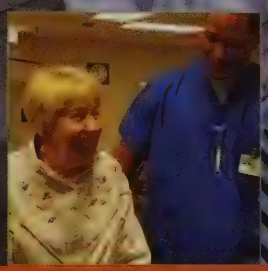
Photography by Andrew Campbell

In Good Hands

By Patrick F. Kelly



Photography by Andrew Campbell



How occupational therapists prepare patients to overcome everyday obstacles

Making sure that patients can do everyday things — whether it be cooking, shaving or getting in a car — and making sure they can do them safely is an occupational therapist's job.

Deb Wallace, OTR/L, clinical manager of inpatient and outpatient rehabilitation at Rush, helps patients return to their daily lives after surgery or injury.

Photography by Andrew Campbell

Deb Wallace, OTR/L, makes a simple suggestion to a patient. "Would you like to get up, go over to the fridge and fix something to eat?" The patient is recovering from the neurological damage caused by a stroke, and for him, ordinary tasks like making a sandwich can be not only difficult, but dangerous as well. And according to Wallace, how her patient makes a sandwich can even be revealing.

Wallace — an occupational therapist — is asking her patient to make a sandwich for several reasons. She's determining if the patient can navigate the kitchen safely (Is he moving from the refrigerator to the counter without losing his balance? Is he using the knife with the sharp edge up or down?). She's assessing his cognitive abilities to see if he needs additional help with sequencing (Is he assembling the sandwich in a logical order or is he putting the bread together before he spreads the mustard?). And she's helping her patient relearn the basics of food preparation. The goal is to help the patient achieve the quality of life he is used to, in spite of the stroke.

As an occupational therapist Wallace uses activities with specific goals to help people of all ages prevent, lessen or overcome disabilities, whether the disability is something they're born with or is a result of an accident or illness. Making sure that her patients can do everyday things — whether it be cooking, shaving or getting in a car — and making sure they can do them safely is her job.

With the baby boomer generation facing their senior years and people living longer — but not necessarily healthier — than ever, the demand for occupational therapists is likely to soar over the next several years, according to the U.S. Department of Labor's Bureau of Labor Statistics. "The bottom line is that the longer one lives, the greater the probability that one is going to have a disability or problem with functioning," says Christy Walloch, OTD, OTR/L, BCP, acting chair of the Department of Occupational Therapy at the Rush University College of Health Sciences.

Easy Street — a facility located in the Johnston R. Bowman grocery store, kitchen, bedroom and garage. Great pains

Patient Betty Cross, recovering from operations on both her knees, peruses the Easy Street grocery store and practices using her reacher.

Photography by Andrew Campbell

This growing need, coupled with fewer men and women entering the field (the total number of applications dropped by approximatily 3,200 in the United States last year), has created a shortage in the profession. It's a profession that, according to Walloch, offers flexibility in terms of schedule and work environment — schools, hospitals and homes are among the many places where occupational therapists do their jobs. An ideal candidate, says Wallace, is someone looking for a creative outlet. "Every patient is different," she says. "Every condition is different. You have to find new ways of relating to people, identifying their goals and needs, and helping them solve everyday problems." This is especially true in a hospital setting like Rush.

The kinds of disabilities occupational therapists treat at Rush range from relatively minor, like a broken leg, to major, such as paralysis. For Virginia Modry, it was not one but two hip replacements. Before her initial procedure, Modry led a very independent life. Well into her 70s, she bought her own groceries, put on her own clothes and got herself in and out of cars without anyone's help. The hip replacements, though, changed all that. Doctor's orders required that Modry limit her range of motion during her recovery process, bending at the waist to tie a shoe was no longer an option. Thanks to lessons learned on Rush's Easy Street, though, Modry learned new strategies to do the same things she did before her hip replacement.

Easy Street — a facility located in the Johnston R. Bowman Health Center — resembles a movie set, with its mock grocery store, kitchen, bedroom and garage. Great pains have been taken to make these "sets" as real as possible. The Easy Street grocery store, for example, comes complete with canned goods on the shelves, shopping carts and a checkout counter — even the tile is similar to that of a typical grocery store. And there's a real car: it's a Ford.

On Easy Street, Modry learned to navigate a walker and use a gadget called a reacher or grabber, to help her do everything from getting a box of cereal off the grocery shelf to putting on her underwear. She also learned how to get in — and out — of a car without defying her doctor's instructions about how far she can bend. "What I learned on Easy Street gave me the confidence I needed to go home," she says.

Health Center – resembles a movie set, with its mock
have been taken to make these "sets" as real as possible.

For patient Betty Cross, who underwent double knee replacement surgery to alleviate serious knee pain, Easy Street was where she practiced climbing stairs, picking items up off of the floor, and standing for long periods of time while folding laundry — activities people often take for granted.

These activities helped build strength in her knees in a way that diverted her attention from the pain of her recent surgery. "It takes your mind off your body for a while," says Cross. "And then you realize, 'Hey, I've been standing here a whole 10 minutes!' "

The therapy was just one more step in getting her back to doing the things she likes — whether it be shopping, visiting a friend or going to church on Sundays — without putting unnecessary strain on her knees. But Cross wasn't alone while on Easy Street; she had the help of occupational therapist Cynthia Baldwin, OTR/L.

Getting to know their patients — what they like to do, how they live and what they want to accomplish in therapy — is key to occupational therapists, says Wallace. Conversation is an important component of that therapy, as is observation. Because simply assembling a ham and cheese sandwich can reveal a lot. ■

Photography by Andrew Campbell

A Starting Point

According to the American Occupational Therapy Association, occupational therapy dates back to the community outreach settlement houses of the early 1900s. This was where those who were both poor and physically and mentally disabled were often given shelter and taught life skills. From the ranks of the Hull House in Chicago, in fact, emerged some of occupational therapy's most influential founders – including Eleanor Clarke Slagle, who is credited with founding the profession, and Susan E. Tracy, who wrote the first occupational therapy textbook and taught some of the earliest courses in occupational therapy to nursing students at the Presbyterian School of Nursing (now the Rush University College of Nursing) in 1917.

"When it all started," says Christy Walloch, OTD, OTR/L, BCP, acting chair of the Department of Occupational Therapy at Rush University, "the focus was on mental health and getting people back into the community and functional."

The United States Army quickly realized the need for occupational therapists during and after World War I, when better medical care began saving wounded soldiers who in previous wars might have died on the battlefield or lingered in hospitals. To cope with the task of rehabilitating these wounded soldiers, the Army began recruiting reconstruction aides – who were either physical therapists or occupational therapists.

While physical therapists work on exercise and rehabilitating the body, the occupational therapists' approach was to heal the mind and body together. Occupational therapists found that involving injured soldiers and even those with amputated limbs in the arts and crafts would not only get them moving their bodies, but also lift their spirits and make them active participants in their own recoveries. Some of the earliest occupational therapists taught basket weaving, painting and making wreaths.

Over the years, the profession has moved away from the arts and crafts approach. It now focuses more on using activities to help patients function in their daily lives.

Lean on me

By Jill Waite

Photography by Andrew Campbell

Karen Stratton, MSN, RN (left) and Ginny Casey, MS, RN

Psychiatric liaison nurses help patients, families and staff cope

Far from her friends and home and overwhelmed by multiple surgeries and the prospect of losing her leg to peripheral vascular disease, 72-year-old Eve Engles feared for her future. Were there more surgeries ahead? How would she be able to maintain her independence? Would she be a burden to her children? Plagued by questions like these and overwrought by her ongoing health problems, Engles was on an emotional roller coaster ride — a ride zooming out of her control.

"I think I could have gone over the edge," she says. But someone at Rush helped pull Engles from the brink of despair. That someone was psychiatric liaison nurse Ginny Casey, MS, RN.

Unlike nurses on patient floors who tend to a multitude of patient needs — whether it be administering medications, changing IVs, coordinating care or ensuring their safety — Casey's sole focus is the emotional and mental well being of patients on nonpsychiatric units, their families and the staff who work with them. Because more often than not, depression and stress accompany long-term illnesses and hospital stays, which can affect not only patients and their families but staff as well. "If a patient or family member's behavior or thought process is interfering with the patient receiving the medical or surgical care they need, then they bring in someone like me," Casey says. "As for staff, sometimes they need someone like me to help them cope with the difficult situations they face."

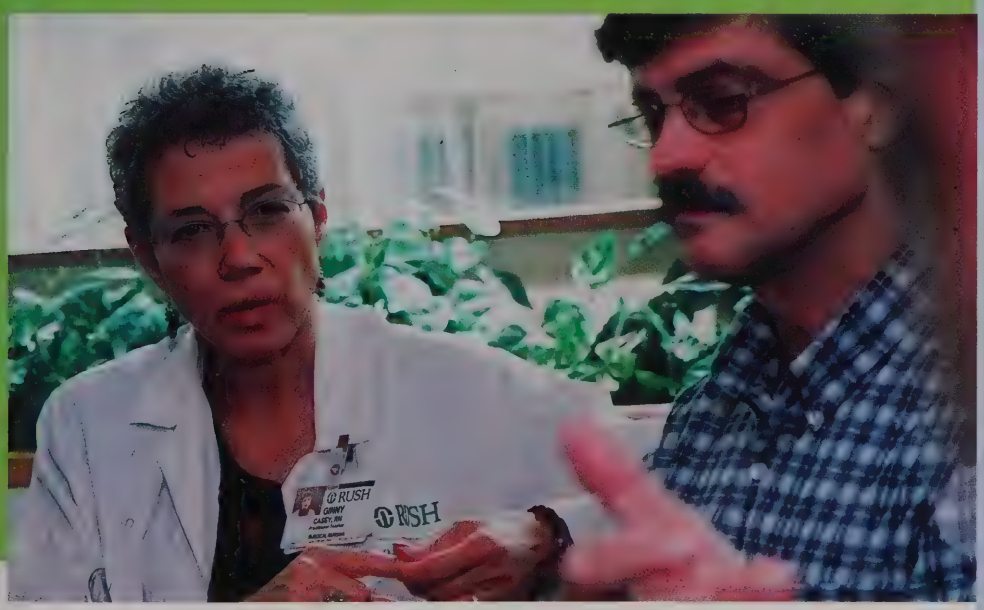
Casey attends to the needs of those on Rush's surgical and oncology floors — which include patients who are facing transplants, major cardiac surgery and terminal cancer. Her psychiatric liaison nursing counterpart, Karen Stratton, MSN, RN, can be found on Rush's medical floors, where she encounters patients with health problems that range from the catastrophic, like strokes, to chronic, such as diabetes.

"Karen and Ginny are consulted on only the most challenging and complex cases — the cases where a patient, a family or a nursing staff group is in crisis," says Jane Llewellyn, DNSc, RN, vice president for clinical nursing affairs at Rush. "Through their skillful intervention, they help us all through the tough situations that arise in health care today."

In most cases, Casey and Stratton are referred to a patient or family by those who see them the most — unit nurses and physicians. Although the unit nurses and physicians can identify the signs of emotional and psychiatric trouble in patients and their families, the demands of their jobs limit how much time they can devote to issues such as depression, stress and anger management. And most are not specifically trained to deal with these kinds of problems. That's where Casey and Stratton come in. With masters' degrees in psychiatric nursing and more than 50 years of psychiatric nursing between them, these nurses have the education and experience to help those in trouble navigate difficult times. And when the situation demands it, they refer their patients to psychiatrists.

Ginny Casey, MS, RN, leads a support group for patients and families affected by liver transplantation.

"If a patient or family member's behavior or thought process is interfering with the patient receiving the medical or surgical care they need, then they bring in someone like me," Ginny Casey, MS, RN, says.



Patients with life-threatening illnesses and their families find talking with those who have undergone — and survived — similar experiences extremely helpful, says Ginny Casey, MS, RN. Rush staff also benefit from group sessions led by psychiatric liaison nurses.

For Eve Engles, Casey provided an ear to bend, a hand to hold and a way of explaining the complexities of her condition and treatment that was meaningful and understandable. During her five months at Rush, Engles underwent 12 surgeries — some to save her right leg and several to amputate her left — and grueling sessions of physical and occupational therapy. Through the worst of it, Ginny Casey was there. "Ginny was my lifesaver," says Engles. But it wasn't a medical intervention that "saved" Engles. It was communication. "I talked," says Engles. "And Ginny listened."

Listening is a key component of therapeutic communication, a face-to-face interaction that focuses on advancing the physical and emotional well being of a patient. It encourages patients to talk, concentrate on their feelings and direct their attention to the problem at hand.

"Ginny and Karen's worth is not measured in traditional terms," Llewellyn says. "Rather it is measured in the serious outcomes that are prevented, such as the patient suicide that does not occur, the patient who is spared the indignity of being placed in restraints or the staff nurse who does not quit her job because she feels unsupported."

Families, important players in a patient's treatment and recovery process, also benefit from their time with Casey and Stratton. During Engles's stay at Rush, she underwent one surgery only to have to go through another unexpected surgery less than a day later. Unable to reach her son, staff prepared Engles for the next stage of her ordeal. Although heavily sedated, she felt Casey's comforting presence with her. And when her son, Steve, arrived just minutes before she was wheeled into the operating room, Casey explained to him what was going on.

"It was a lot to absorb with four or five people talking to me about my mother's condition, but Ginny sat with me during my mother's surgery and filled me in on what was going on," he says. "My sister lived far away and it was just me there, so the emotional support Ginny gave me was really appreciated."

As nurses, Casey and Stratton have the expertise to explain to patients and families — who are often unfamiliar with medical terminology and hospital protocol — how certain procedures are performed, what steps will be involved and what can be expected. As psychiatric nurses, they help patients and families stay grounded and calm.

"What I do is very practical. I help my patients and their families concentrate on the here and now and focus on the little things, because the big picture can be a lot to handle," Stratton says. "For example, if a patient is immobilized from the waist down and he is able to move his toes one day, I try to emphasize that we should be thankful for that, as opposed to dwelling on why his entire leg isn't moving."

But patients and families aren't the only ones who benefit from having Casey and Stratton working at Rush. Staff also turn to them for guidance and support — whether it be consulting a stressed out nurse, helping a nursing supervisor deal with a problem among his or her staff or advising a physician on how to communicate with an anxious or agitated patient.

> "Karen and Ginny are consulted on only the most challenging and complex cases — the cases where a patient, a family or a nursing staff group is in crisis."

With more assaults against employees occurring in health care and social service industries than in any other, according to the National Institute of Occupational Safety and Health, Rush takes the subject of defusing tense situations very seriously.

Although most patients are cooperative, there are problem cases, says Stratton. "Staff deal with a fair amount of verbal abuse from patients — and sometimes it's physical." That's just one reason why she recently held a seminar for staff about setting limits with patients and learning when and how to say "no" effectively.

"Some patients may demand a test that's unnecessary or refuse a test that is necessary," Stratton says. "When they don't get what they want, the situation can become volatile — some patients become angry, so they yell and scream, throw things and sometimes even destroy hospital property. I advise staff on how to talk to patients, defuse the situation and focus on doing what's medically best for their patients."

Group sessions are also an important support mechanism for patients and their families. Casey holds support groups for liver transplant patients and their families as well as for cancer patients and their families. In these groups, those just beginning to face a health crisis are able to meet with those who have survived one. "Talking with someone who has gone through the same thing and is now leading a normal life – whether it be playing golf, enjoying time with their friends and family or just enjoying life — is extremely helpful to those who are awaiting a transplant and those who have recently been diagnosed with cancer," Casey says.

For patients like Eve Engles, talking and having someone listen meant the world. "Ginny was there for me when I needed someone to calm my fears," she says. Today Engles lives with her daughter, and even though she lost one leg, she has found the strength to not only cope with her disability and what she once viewed as a loss of independence, but to lead a happy and full life with her new prosthesis.

For Eve Engles, Ginny Casey was a lifeline. And for Ginny Casey, Eve Engles was a source of inspiration. "My job has taught me a lot about coping and about the strength of the human spirit," Casey says. "It never ceases to amaze me what we all get through and how we have the ability to bounce back." ■

This is big: Rush wins award for nursing

On July 31, Jane Llewellyn, DNSc, RN, vice president of clinical nursing affairs, accepted the Magnet Award on behalf of Rush and its nursing staff. The award — the highest honor a hospital can receive for nursing services — is given by the American Nurses Credentialing Center (ANCC), which is affiliated with the American Nurses Association and is the nation's largest and foremost nursing accrediting and credentialing organization. Rush was the first medical center in Illinois caring for adults and children — and the 51st in the nation — to receive this award.

Hospitals that receive Magnet status are noteworthy for their excellence and innovation in nursing, and evidence suggests that organizations with these characteristics have improved overall patient outcomes. Other studies of Magnet hospitals have shown that they have shorter lengths of patient stay, higher rates of patient satisfaction and greater cost-efficiency.

Rush received Magnet designation after a two-year evaluation process that started with a voluminous application and ended with an exhaustive, onsite inspection by the ANCC. To qualify for Magnet status Rush first had to meet high standards on 14 core areas and several sub-categories for a total of 95 areas before moving to the full application level.

To signify this achievement, Rush nurses now proudly wear Magnet pins when they come to work each day. But nurses aren't the only winners when it comes to Magnet. "Magnet strengthened the quality of our nursing programs, it heightened the sense of teamwork throughout Rush and really instilled a sense of pride in the nursing division and, I think, throughout the whole institution," Llewellyn says. "Most important, it highlights the excellent care we give our patients." ■

Photography by Kevin Horan

Rush was the first medical center in Illinois caring for adults and children to receive the Magnet award for nursing services.

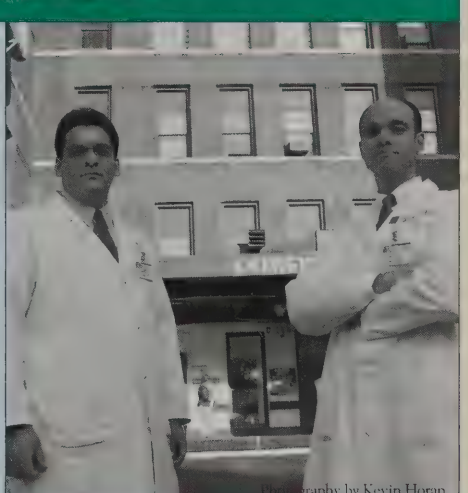
Rush and Cook County named "centers of excellence" for biopreparedness

Should a biomedical emergency hit the Chicago area, health care personnel will have to be trained, outfitted and prepared in unprecedented ways. With $1.3 million in federal funding, the Chicago Department of Public Health (CDPH) recently named Rush and Cook County Hospital — which have a combined Emergency Medicine Department under the direction of executive chairman Robert Simon, MD — "centers of excellence" for their biopreparedness efforts. The grant underwrites planning for everything from decontamination facilities to stop the spread of infectious diseases, to technology capable of tracking emergency room visits.

"These hospitals have stepped forward and demonstrated to us that they have an impressive commitment to disease control and emergency preparedness," says CDPH commissioner John Wilhelm, MD. "These new resources should enable them to raise the bar and bring an unprecedented level of public health protection to Chicago."

Next on Rush's drawing board: the development of a Regional Center for Advanced Medical Response, a new facility that could enhance our city's capacity to treat patients during a mass-casualty emergency and offer year-round preparedness training. The center will capitalize on Rush's relationship with Cook County Hospital, its extensive medical expertise in infectious disease and infection control and its close proximity to other hospitals and related medical resources.

"In a post 9-11 world, there are new health care realities," says Dino Rumoro, DO, clinical chairman of emergency services at Rush, who co-wrote the proposal for the center with associate clinical chairman Julio Silva, MD. "We need to develop a sophisticated, flexible medical infrastructure so we're ready for anything." ■



Photography by Kevin Horan

Thanks to federal funding, Rush and Cook County Hospital will play leading roles in safeguarding Chicago from bioterrorist attacks. Dino Rumoro, DO (left), and Julio Silva, MD, wrote the proposal that helped obtain the funding.

HIV vaccine tests under way

A vaccine could prevent HIV in healthy people.

Every day, 15,000 people are infected with HIV. Ninety-five percent of them live in the developing world.

In the quest to find an effective, sustainable way to prevent HIV, Rush is testing a vaccine that may prevent healthy people from ever contracting the disease. The only Chicago-area medical center to conduct this trial, Rush is testing two versions of the vaccine in people not infected with HIV.

A modified common cold virus will deliver a gene of the HIV-1 virus into cells. The virus is altered so it can't replicate and cause illness, but it should stimulate the body to produce an army of T-cells that will trigger an immune response against HIV.

Preliminary analysis suggests that the vaccines for the prevention and treatment of HIV-1 elicit specific antiviral cellular immune responses and are generally well tolerated.

"Finding an effective HIV vaccine represents the holy grail of HIV treatments," says Rush infectious disease specialist Beverly Sha, MD, "and this HIV vaccine trial represents a major step toward achieving this goal." ■

For more information about this study, please call (312) 942-5865.

Keeping track of stroke care

A registry promises to identify gaps in stroke care.

Stroke is the third most common cause of death among adult Americans and the leading cause of disability. The situation in Illinois is particularly dire: In a recent federal assessment of stroke mortality rates, Illinois ranked 20th in the nation.

To gain a better understanding of the quality of stroke care across the state, Rush will use a $760,000 grant from the Centers for Disease Control to set up a statewide stroke registry — one of only eight nationwide that will serve as prototypes for a national registry.

As stroke patients are admitted to randomly selected urban and rural hospitals, staff will enter data on treatment and outcomes on a centralized Web site.

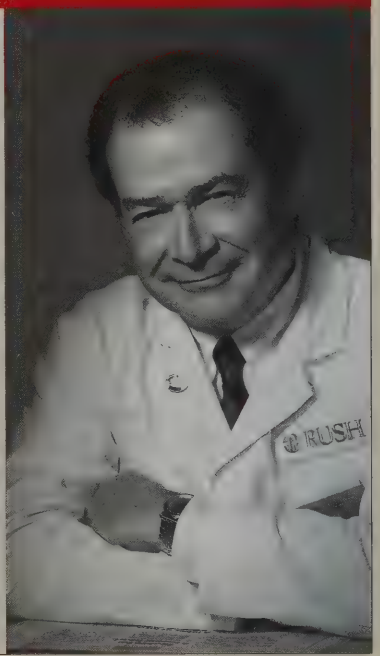
"This is the first research of its kind on this large a population," says Rush neurologist and registry director Dilip K. Pandey, MD. "Rush's registry promises to help identify gaps in stroke care that will lead to better prevention and treatment strategies in Illinois and throughout the U.S." ■

For more information about stroke treatment and prevention, contact the Rush Neuroscience Institute at (312) 563-2030.

Endowed chair established

The Board of Trustees of Rush-Presbyterian-St. Luke's Medical Center recently established the Glore Family Chair in Neonatology as the 86th endowed professorship in Rush University. The chair will support patient care, education and research in neonatology, including the study of infant brain function. The chair was given to express the Glore family's confidence in and support of Larry J. Goodman, MD, in his new role as president and CEO. The chair was established in recognition of trustee Robert Hixon Glore and his family. Mr. Glore, a member of the Board of Trustees for nearly 50 years, is the Medical Center's longest serving general trustee. Four generations of the Glore and Hixon families have been associated with the Medical Center and its predecessor institution, St. Luke's Hospital. ■

Rush elects new trustee



Leo M. Henikoff, MD, has been elected a life trustee of Rush Presbyterian-St. Luke's Medical Center. In February 2002, Henikoff stepped down as Rush president and CEO, a position he held for 17 years. He previously served Rush as dean of student affairs, acting dean of Rush Medical College and vice president for interinstitutional affairs. He was also dean of the school of medicine and vice president for medical affairs at Temple University in Philadelphia. ■

Recent appointments and endowed chairs

Bruce Elegant, president and CEO of Oak Park Hospital, has been named a vice president at the Medical Center. Elegant has more than 20 years of experience in health care management, starting in administrative services at the Joint Commission for Accreditation of Healthcare Organizations. He spent 15 years at the University of Illinois Hospital and Clinics — serving as interim director of the hospital for two of those years — followed by three years as vice president and chief operating officer at Michael Reese Hospital and Medical Center. In 1997, Rush recruited him to be associate vice president for hospital affairs at the Medical Center and president and chief executive officer at Oak Park Hospital. During his time there, he has overseen the construction of a new medical office building and has helped to transform the institution into one of the fastest growing hospitals in the western suburbs.

Louis Kraus, MD, has been named director of the Section of Child Psychiatry. He most recently was director of child and adolescent forensic psychiatry at the University of Illinois at Chicago. Kraus, who received his medical degree from the Chicago Medical School in 1987, did his surgical internship at Boston University, his psychiatry residency at Northwestern University, and his fellowship in child and adolescent psychiatry at the University of Chicago, where he subsequently served as assistant professor of clinical psychiatry and assistant director of child and adolescent inpatient services. He has been a psychiatric consultant to the Illinois Youth Center in Joliet and has chaired the physician review board for the City of Chicago's Department of Mental Health.

Jane Llewellyn, DNSc, RN, has been named vice president for clinical nursing affairs at the Medical Center. At Rush since 1972, she has held a number of leadership roles in both hospital operations and the College of Nursing, including director of nursing for the surgical hospital, chairperson of medical-surgical nursing and associate professor of nursing. In 1982, she received her doctor of nursing science degree from the Rush University College of Nursing, where she currently holds the position of associate dean for practice. Since 1997 she has led the Division of Nursing as associate vice president for nursing services. The co-author of the textbook *Nursing Research for Nursing Practice*, Llewellyn was recently presented with the University of Illinois at Chicago Nursing Institute's Sage Award for extraordinary mentoring of nurse leaders.

Christine L. Malcolm has been appointed to the new position of vice president of strategic and program development at Rush. She has overall responsibility for planning and strategic assessments and will provide strategic vision and management for new business initiatives and programs. Before coming to Rush, Malcolm served as vice president, provider solutions for Oak Brook-based Global Health Solutions Group, the health care consulting practice of Computer Sciences Corporation. She previously was vice president of managed care and network development at the University HealthSystem Consortium — a network of 108 academic health centers and health systems — and vice president of planning and corporate development at the University of Chicago Hospitals. She received her AB, with honors, from the University of Chicago, where she also received an MBA in Health Care Administration.

John Trufant, EdD, has been named associate provost of Rush University. He is the Catharine and R. Winfield Ellis-Philip N. Jones, MD, Professor of University Affairs and vice president for academic resources. Trufant, who is also on the faculty of the Department of Health Systems Management, came to Rush in 1975 as acting director of the Center of Educational Resources. His published research includes studies of medical center administration and students' academic performance. Since 1983, he has been dean of Rush's Graduate College, and in 1985 he was named dean of the College of Health Sciences. He recently stepped down from the position of dean of the Graduate College.

Robert A. Balk, MD, has been appointed to the J. Bailey Carter, MD, Chair of Cardiology. Balk is professor of internal medicine, director of the Section of Pulmonary and Critical Care Medicine in the Department of Internal Medicine and associate director of the Section of Critical Care Medicine. Since 1994, he has also directed the Fellowship Training Program in Pulmonary and Critical Care Medicine at Rush. An internationally renowned researcher in the field of sepsis and septic shock, Balk has published more than 75 articles and contributed to more than 100 book chapters, abstracts and editorials. He is a fellow of the American College of Physicians-American Society of Internal Medicine, the American College of Chest Physicians and the American College of Critical Care Medicine. Among his many honors, Balk has received the Alice Sachs Memorial Award for superior service in patient care at Rush.

Theodore Mazzone, MD, was appointed to the Dr. Andrew and Peg Thomson Chair of Internal Medicine. Mazzone is professor of internal medicine and of biochemistry and director of the Section of Endocrinology and Metabolism in the Department of Internal Medicine. Mazzone joined the Rush faculty and staff in 1989 and has served as a section director since 1991. He also co-directs the Rush Medical College/Cook County Hospital endocrinology and metabolism fellowship program. He previously served on the faculty of the University of Chicago Pritzker School of Medicine and the University of Illinois College of Medicine. A nationally recognized expert in lipid metabolism, Mazzone has published nearly 60 peer-reviewed articles and nearly 50 book chapters and abstracts. He was recently appointed to the Special Emphasis Review Panel for the Center for Scientific Review at the National Institutes of Health.

Theodore Oegema, Jr., PhD, has joined Rush as chairman of biochemistry and has been appointed to the John W. and Helen H. Watzek Chair of Biochemistry. Oegema comes to Rush from the University of Minnesota, where he was professor of orthopedic surgery and biochemistry in the medical school and the college of biological sciences. He was also associate director of the medical school's MD/PhD program. Oegema's research — published in more than 100 papers — has focused on bone structure's role in promoting osteoarthritis, as well as skeletal connective tissues and the spine. He has served as co-editor of the journal *Connective Tissue Research* and, since 1999, has been associate has been associate editor of *Spine*. A past president of the Orthopaedic Research Society, he has served four times as a co-organizer of the Midwest Connective Tissue Workshop. He is an associate member of the American Academy of Orthopaedic Surgeons. ■

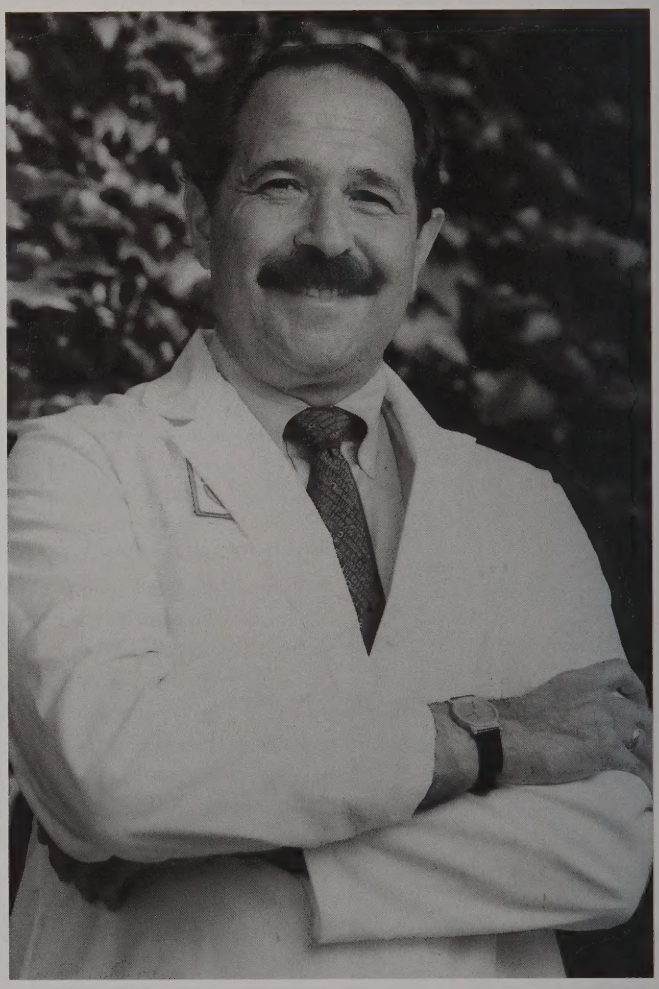
In Memoriam: Rush says good-bye to a highly respected researcher and physician

Harvey D. Preisler, MD, director of the Rush Cancer Institute, chief of the Division of Hematology/Oncology and the Samuel G. Taylor III Professor of Medicine at Rush, died in Chicago on May 19 of lymphoma at the age of 61. A memorial service for Preisler was held at the Medical Center on May 31.

Originally from Brooklyn, N.Y., Preisler came to Rush in 1992 and built a team of renowned laboratory and clinical researchers that included approximately 25 scientists devoted to basic and molecular research in acute myeloid leukemias (AML). A world-renowned "bench-to-bedside" researcher of AML, he focused on identifying the molecular and genetic lesions responsible for cancer, translating his findings into novel therapies that dramatically improved the outcome for patients. He was also the principal investigator of a $10 million grant from the National Cancer Institute to study and treat secondary hematologic diseases. A prolific author, he published more than 350 research papers — most focusing on various factors of leukemia — 50 books and chapters, and nearly 400 abstracts.

After receiving his medical degree in 1965 from the University of Rochester, Preisler trained in medicine at New York Hospitals and Cornell Medical Center, and in medical oncology at the National Cancer Institute in Washington, D.C., and Columbia Presbyterian Hospital in New York. He then joined Mount Sinai Hospital in New York, and subsequently moved to Roswell Park Cancer Institute in Buffalo, N.Y. to direct the leukemia service there for the next 14 years. He was recruited to head the Barrett Cancer Center at the University of Cincinnati in 1989 and remained there until coming to Rush.

Throughout his career, he guided and trained a great many young and hopeful students and researchers. He was noted for serving his patients with extraordinary dedication, consideration, respect and profound understanding for the tragedies they and their families faced once they were informed of the diagnosis of cancer. Preisler's lasting legacy, though, will be his research, which will continue under the supervision of his wife and research partner, Azra Raza, MD, director of the Myelodysplastic Syndrome Center at Rush.



Harvey D. Preisler, MD

1700 West Van Buren, Suite 250
Chicago, Illinois 60612

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